

# California Project Management Methodology

## CA-PMM



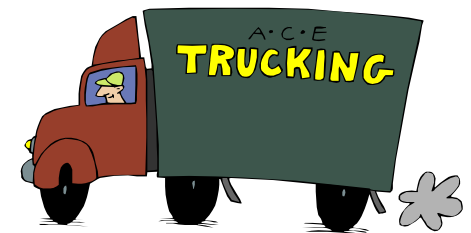
# Welcome!

Instructor,  
Organization

- ◆ Name
- ◆ Organization
- ◆ Job responsibility
- ◆ How long have you been with your organization?
- ◆ What are your expectations for this class?



- ◆ Start and finish
- ◆ Breaks and lunch
- ◆ Facilities, telephones, and messages
- ◆ Questions, class discussions, and exercises
- ◆ Downloaded materials



- ◆ At the conclusion of this session each participant will be able to:
  - Describe the CA-PMM
  - Articulate the required documentation for the project based on the documentation level model
  - Develop a project charter
  - Develop a project management plan
  - Calculate realistic estimates

# Objectives continued

At the conclusion of this session, each participant will be able to:

- ◆ Compute a critical path
- ◆ Compress the project duration
- ◆ Track project health using vital signs
- ◆ Use problem solving techniques

# Group Exercise: Challenges

- ♦ What specific challenges have *negatively* impacted you and your team during previous projects?
- ♦ Select the top five challenges from the list and briefly discuss the impact that each had on your projects. Write a summary on the flip chart.



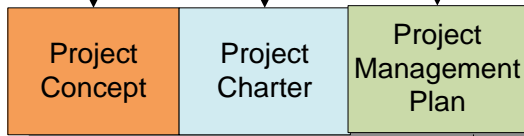
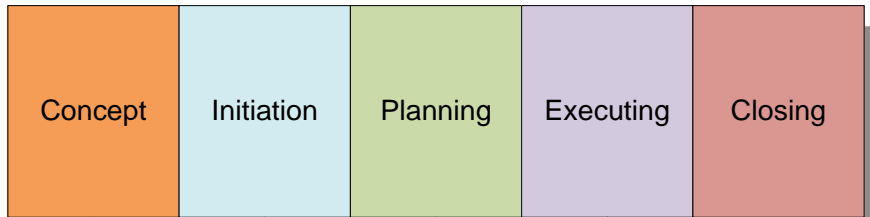
# Common Challenges

- ◆ Imposed deadlines
- ◆ Lack of resources
- ◆ Changing requirements
- ◆ Communication
- ◆ Unclear ownership of decisions
- ◆ Dependence on other projects



# Methodology Framework

## Project Management Life Cycle



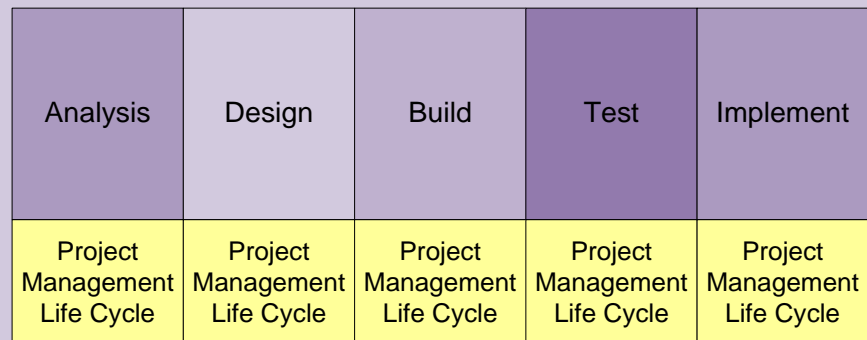
## Project Approval Life Cycle

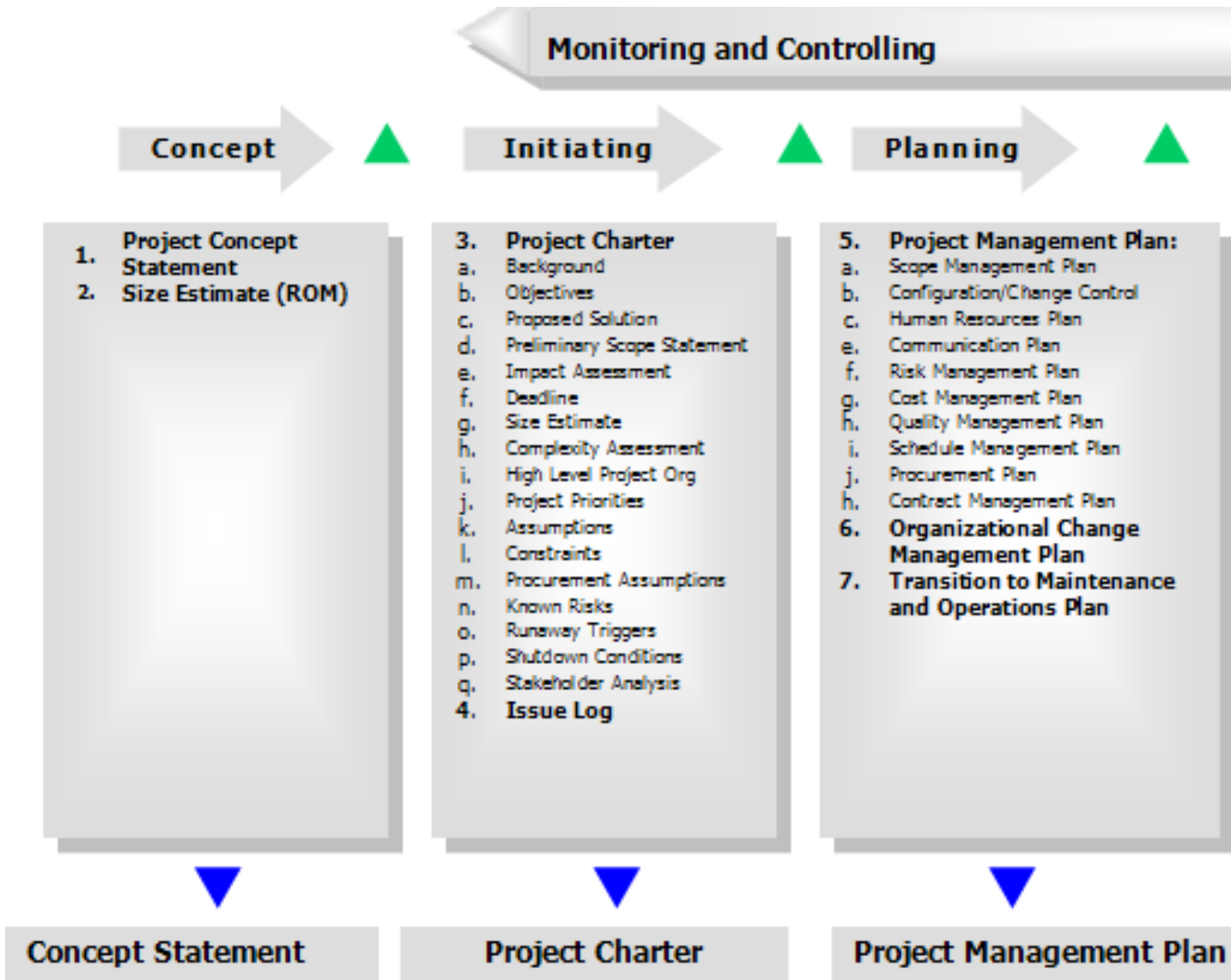
FSR and/or other Project Approval Documents (e.g., APD, IJP, BCP)

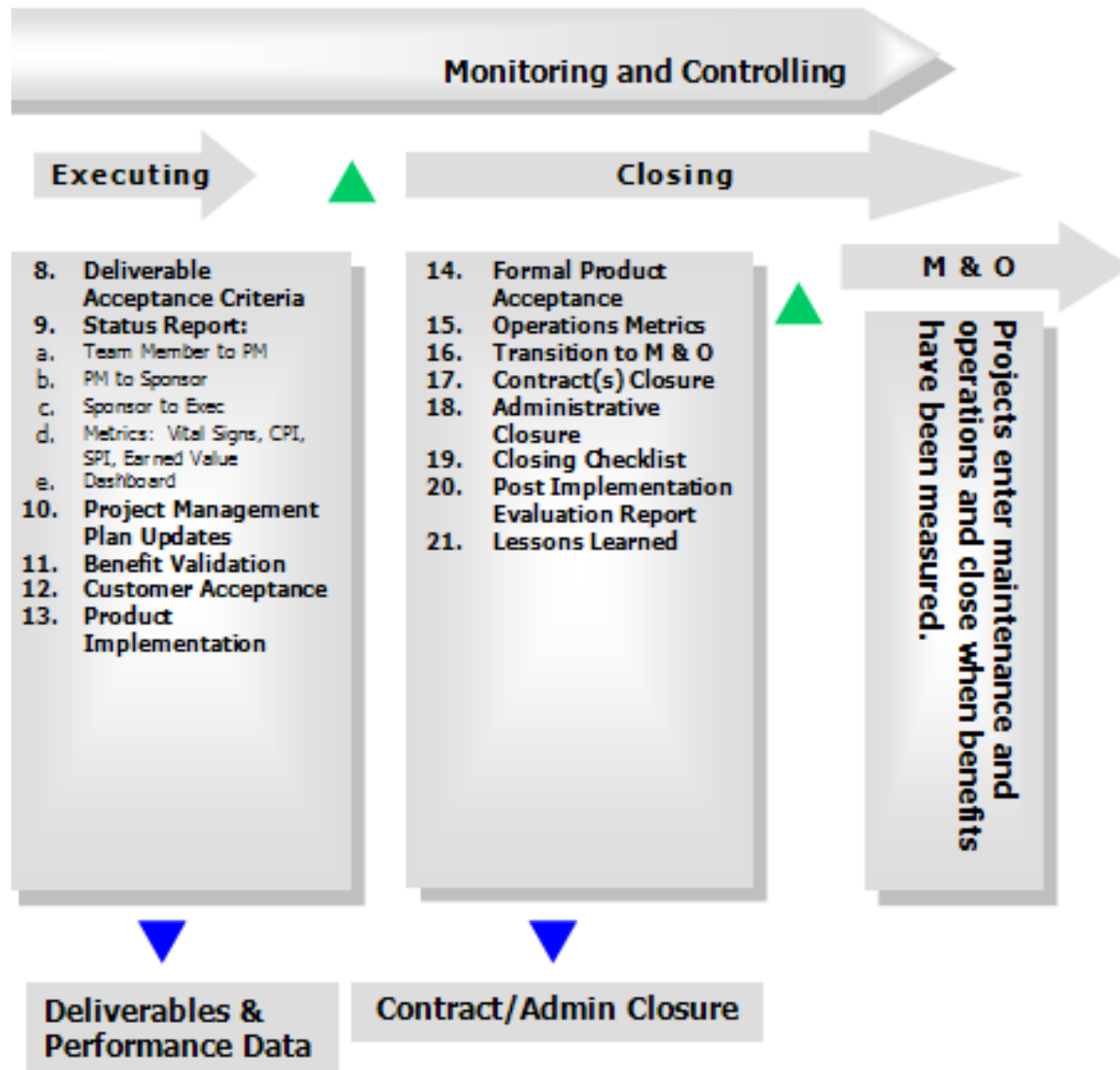


## Procurement Life Cycle

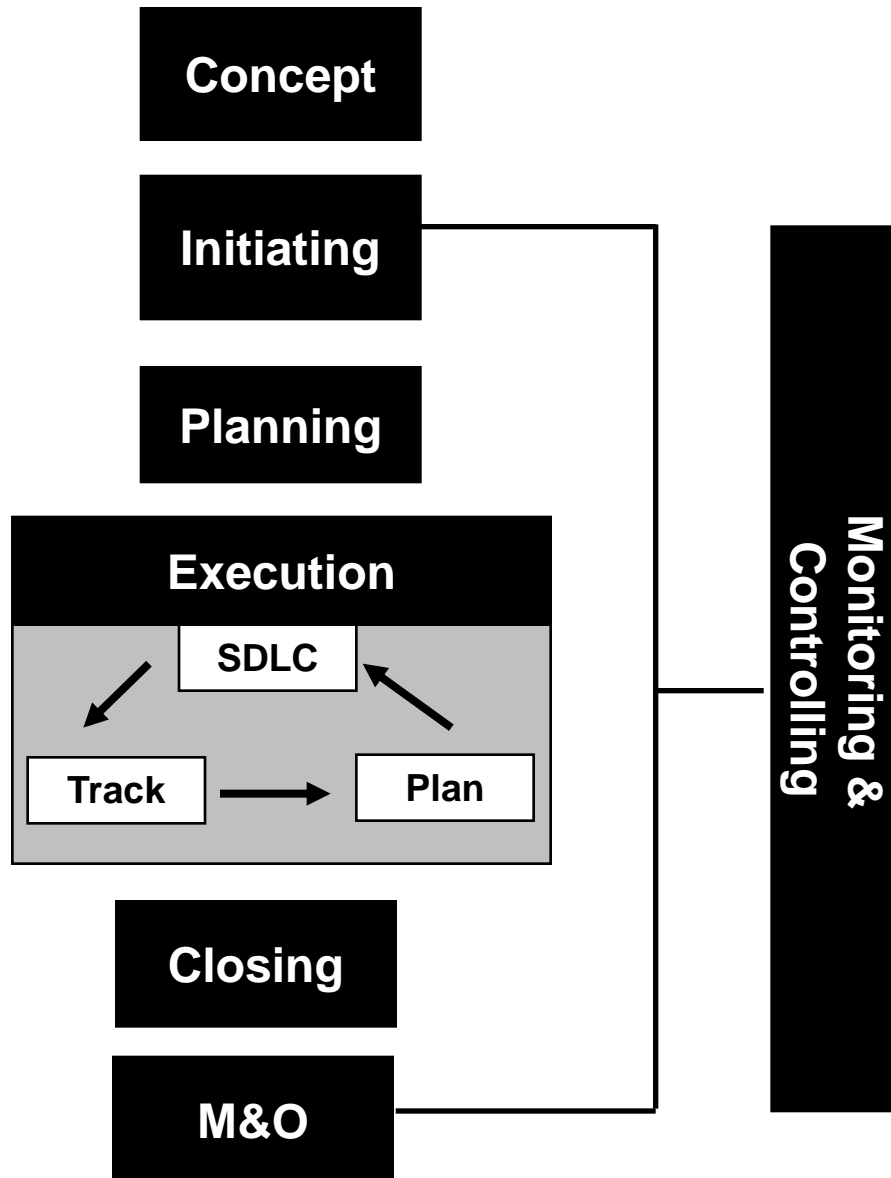
## System Development Life Cycle



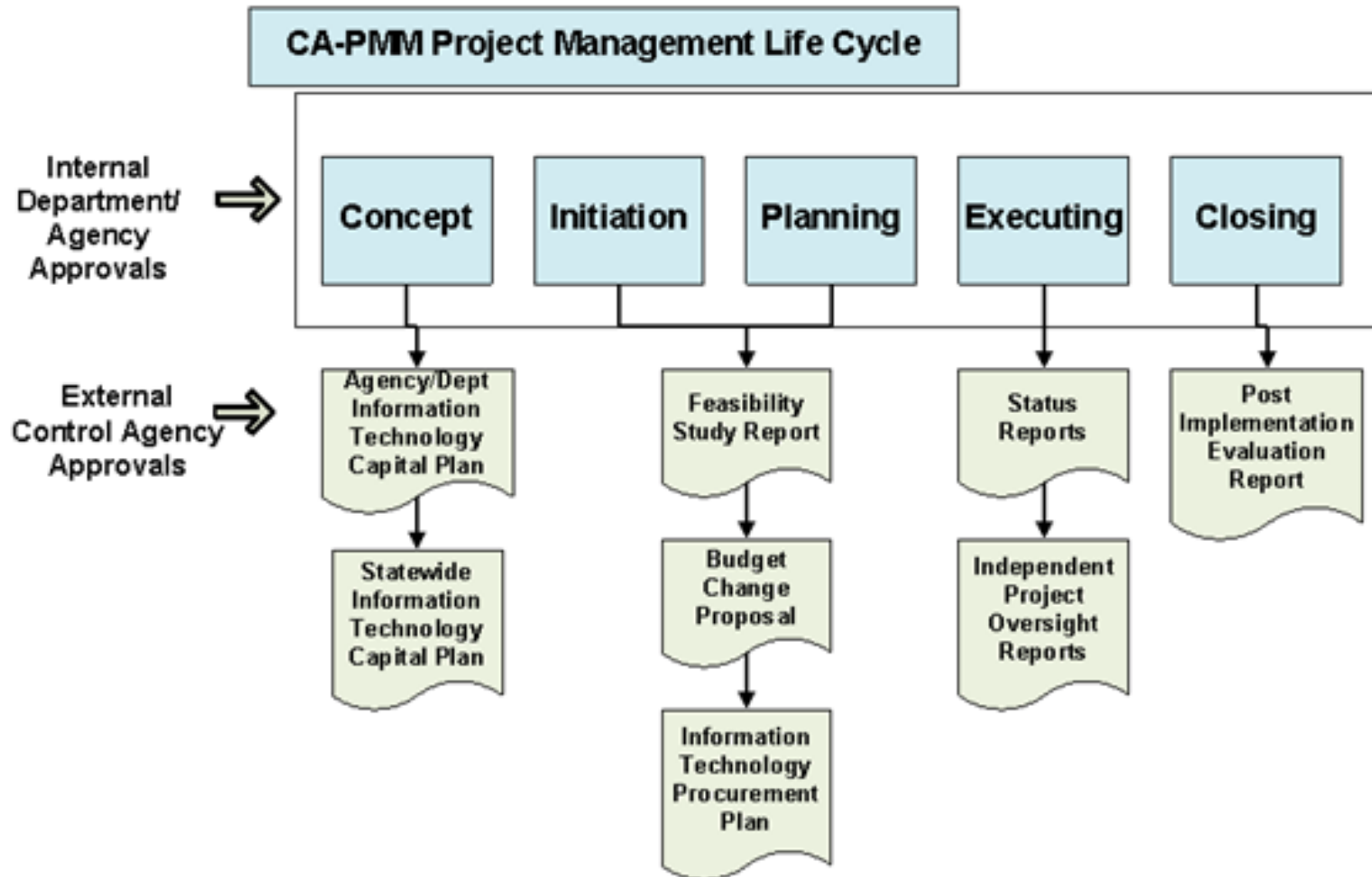




# CA-PMM and SDLC



# CA-PMM and External Approvals



- ◆ Purpose – CA-PMM serves as the states' IT project management standard
- ◆ Background – May 15, 2008 *Supplemental Report of the 2007 Budget Act Item 0502-001-9730 1*

- ◆ CA-PMM Toolkit Implementation
- ◆ IT Project Complexity
- ◆ Status Reporting
- ◆ CA-PMM Training Requirements
- ◆ Scheduling Software
- ◆ Use of Additional or Supplemental Project Management Tools

# Fundamentals



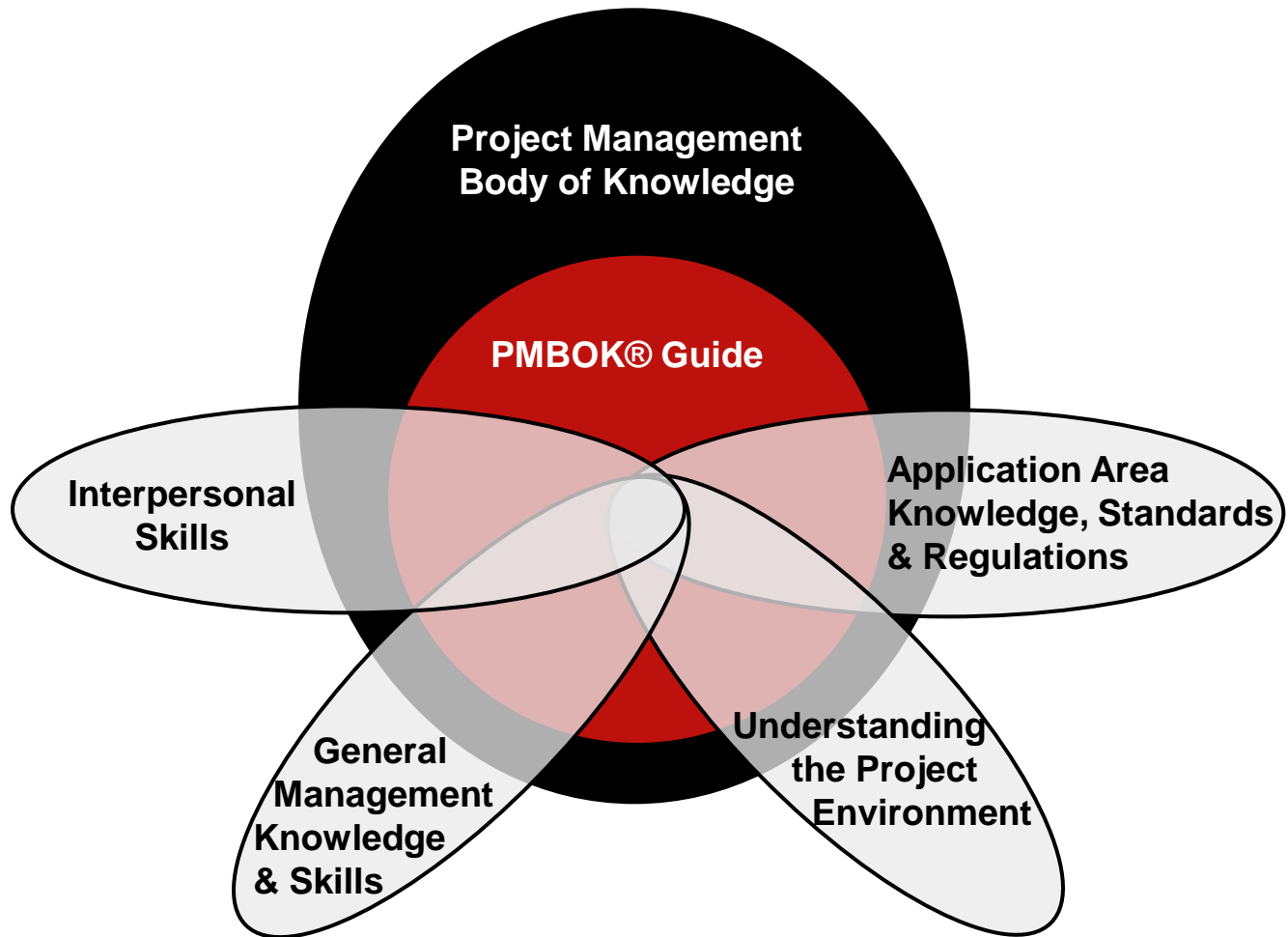
- ♦ “The application of knowledge, skills, tools and techniques to project activities to meet the project requirements.” (PMBOK® Guide)



- ◆ High level requirements
- ◆ Goals
- ◆ Balance competing demands
- ◆ Manage risks
- ◆ Manage stakeholders
  - Communication
  - Expectations

- ◆ Consumes at least 500 hours of effort
- ◆ Provides an IT solution to a business problem/opportunity
- ◆ Is a unique effort
- ◆ Has a start date
- ◆ Has a target finish date
- ◆ Has defined objectives
- ◆ Has named deliverables
- ◆ Has a defined budget and resources

# Project Management Areas of Expertise

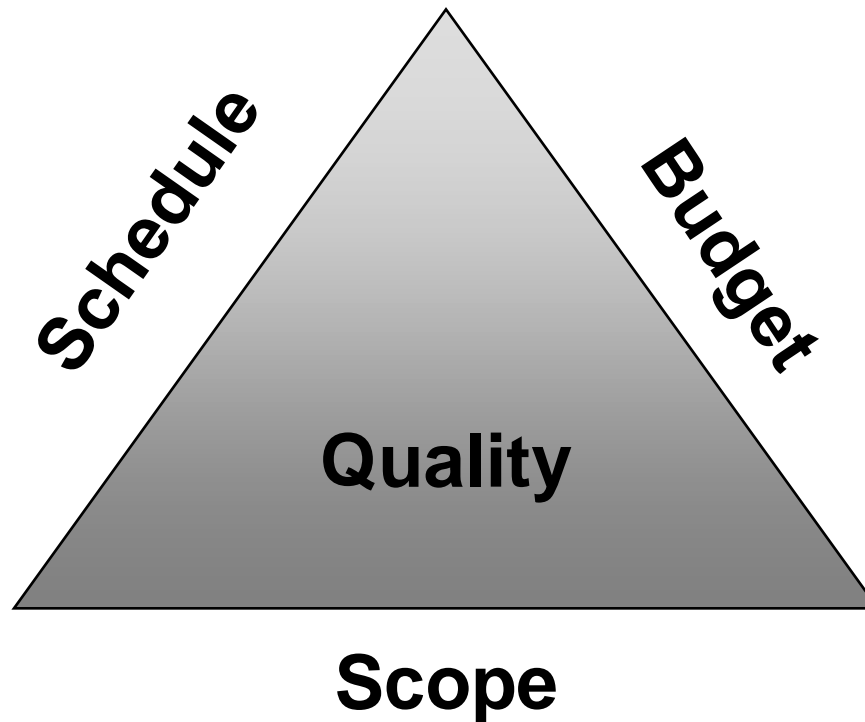


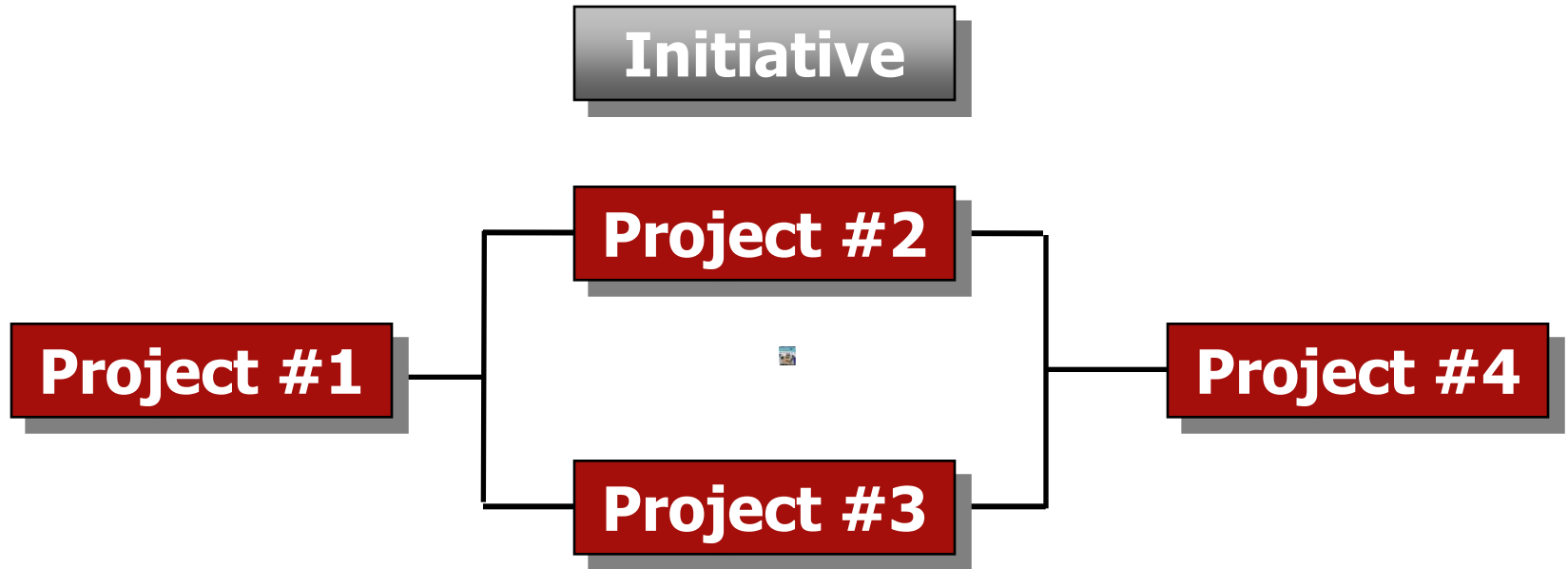
- ◆ Executive Sponsor
- ◆ Steering Committee
- ◆ Project Director
- ◆ Project Manager
- ◆ Project Support
- ◆ Procurement Manager
- ◆ Risk Manager
- ◆ Contract Manager
- ◆ Project Librarian
- ◆ Project Scheduler
- ◆ Quality Manager
- ◆ Technical Manager/Lead
- ◆ Business Manager/Lead
- ◆ Implementation Manager
- ◆ Application Support Manager
- ◆ Test Manager
- ◆ Configuration Manager
- ◆ Operations Support Manager
- ◆ Customer Support Manager

- ◆ Project
  - Temporary
  - Unique
  - Progressive elaboration



## ◆ Triple Constraint

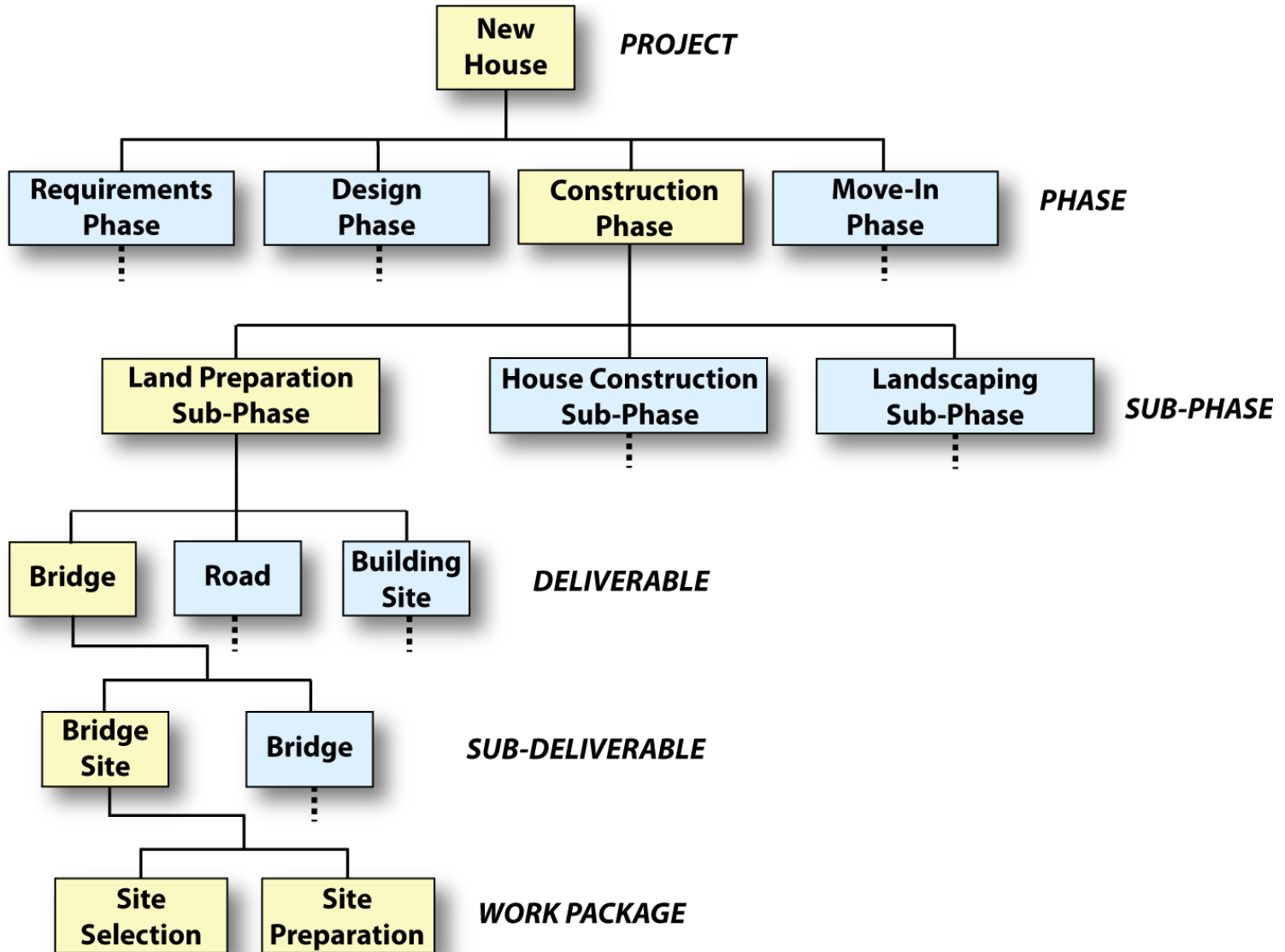




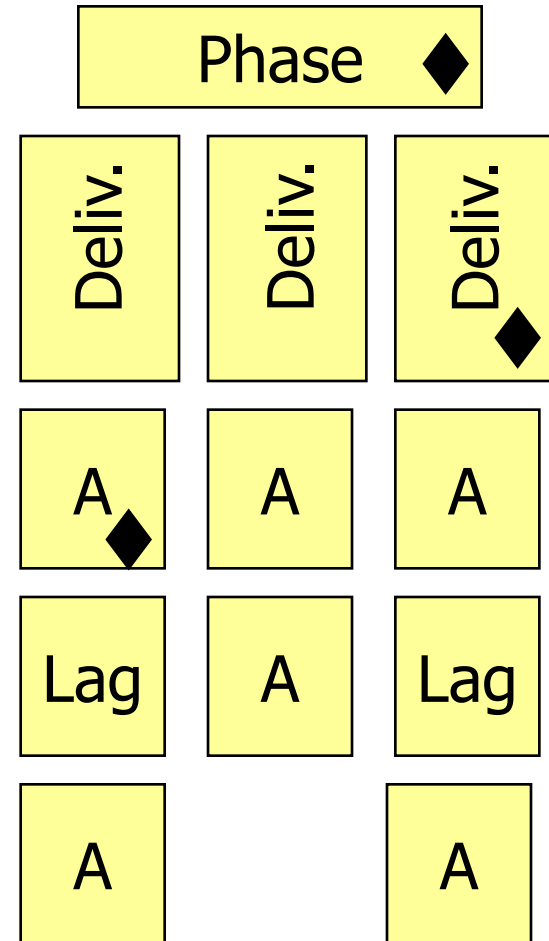
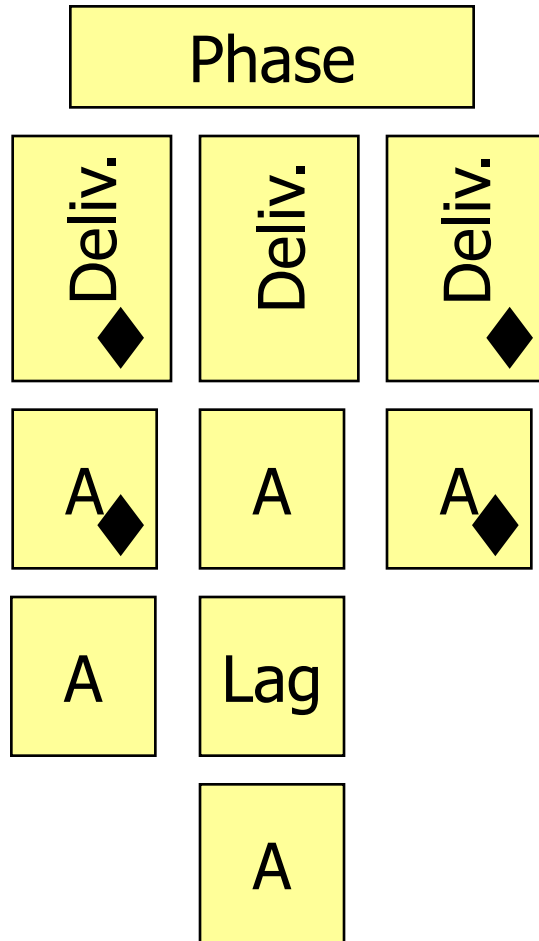
- ◆ Work Breakdown Structure (WBS)
  - Expresses and organizes the total scope of the project
  - Decomposition

- ◆ **Phase**
- ◆ **Deliverable**
- ◆ **Work Package**
- ◆ **Activity**
- ◆ **Milestone**
- ◆ **Lag**

# WBS Example



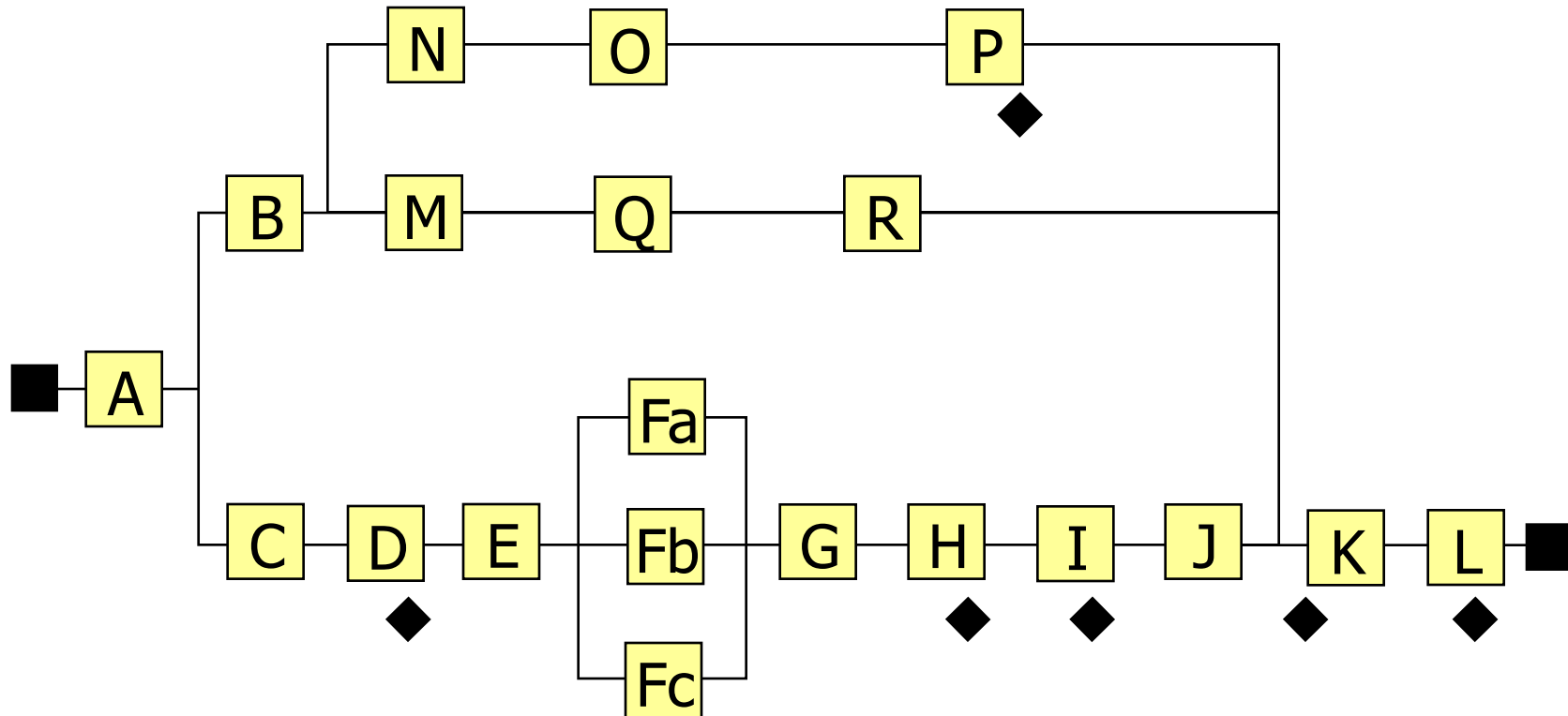
# Three Level WBS



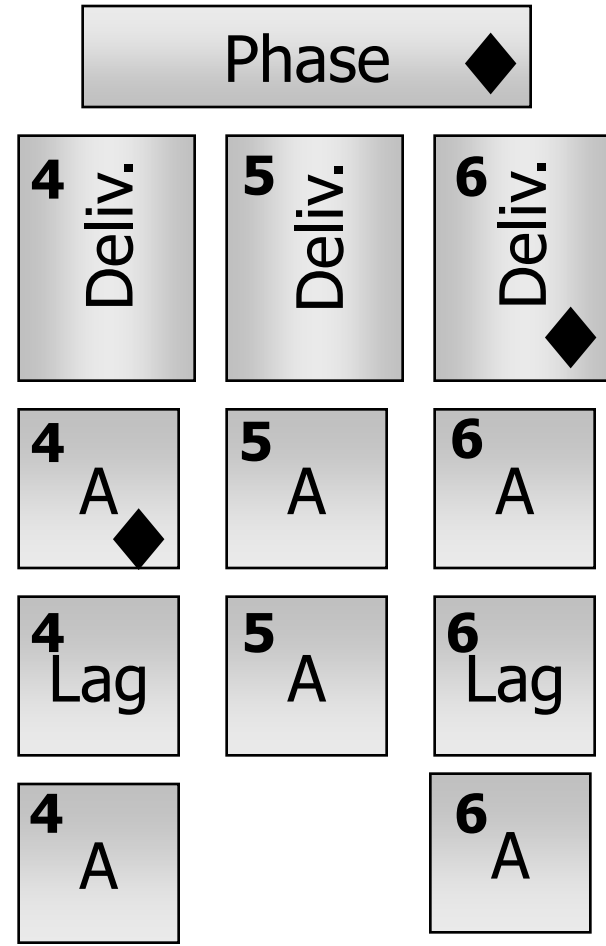
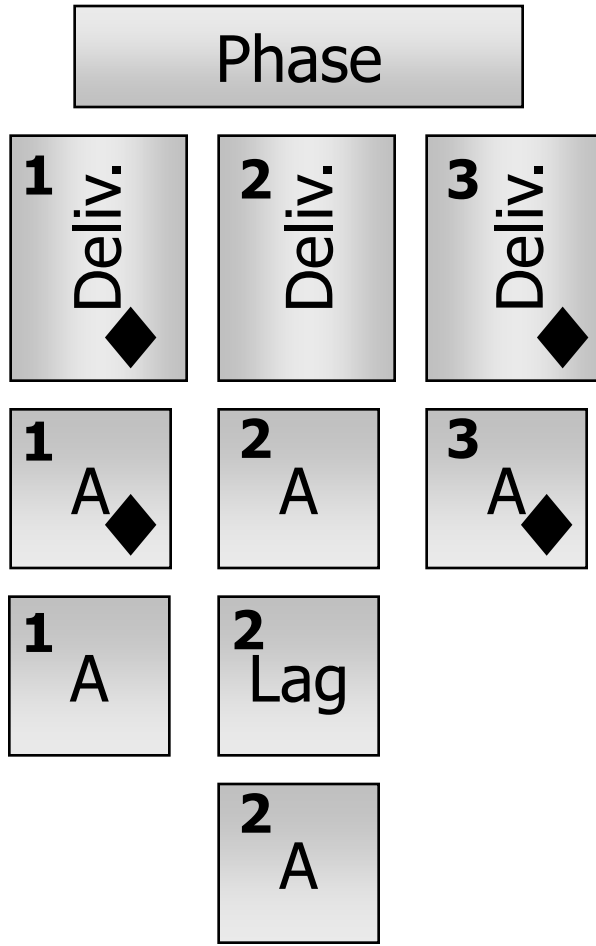
## ◆ Network Diagram

- Logical relationship of activities
- Depicts predecessor and successor tasks
- Execution order based on dependency and sequence
- Shows parallel and series relationships

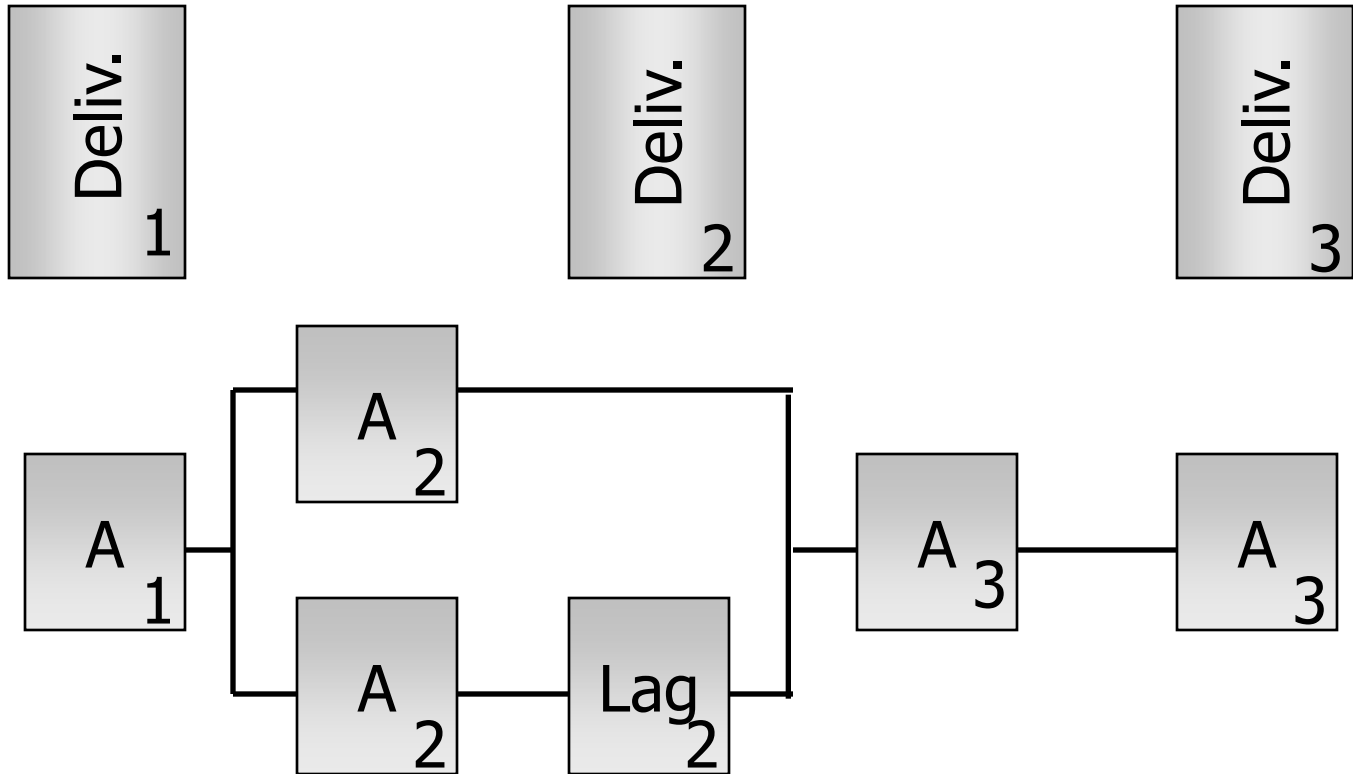
# Network Diagram



# Coded WBS



# Coded Network Diagram



# PM Fundamentals Quiz...

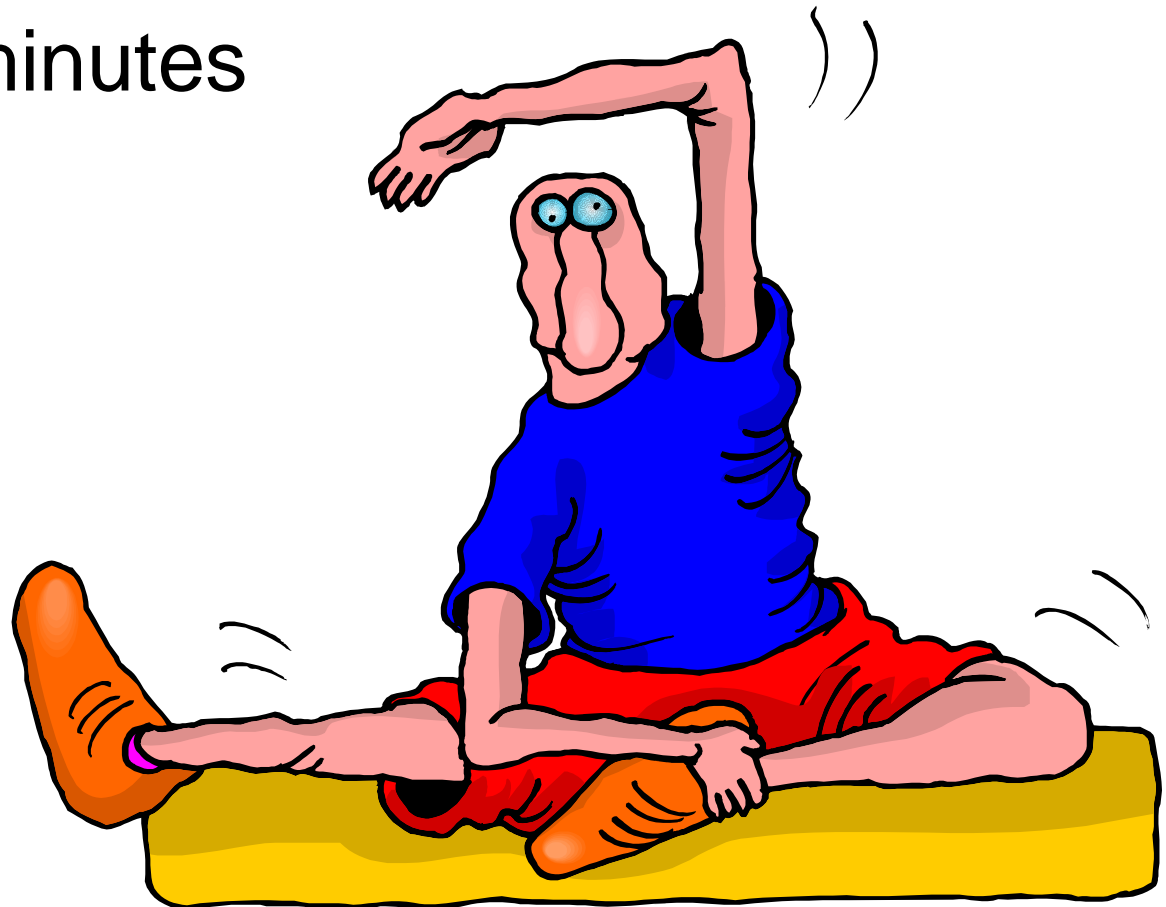
<b>1</b>	Unique, temporary	<b>A</b>	When
<b>2</b>	Phase	<b>B</b>	Product and Process
<b>3</b>	Work Breakdown Structure	<b>C</b>	Significant point of progress
<b>4</b>	Scope	<b>D</b>	Project
<b>5</b>	Task	<b>E</b>	Finish to Start
<b>6</b>	Lag	<b>F</b>	Distinct stage of product development
<b>7</b>	Schedule	<b>G</b>	Decomposition
<b>8</b>	Deliverable	<b>H</b>	What
<b>9</b>	Budget	<b>I</b>	Logical sequence
<b>10</b>	Network Diagram	<b>J</b>	How much \$
<b>11</b>	Milestone	<b>K</b>	4 to 40 hours of effort
<b>12</b>	Relationship	<b>L</b>	Wait time between dependent tasks

# 50<sup>th</sup> Wedding Anniversary Exercise

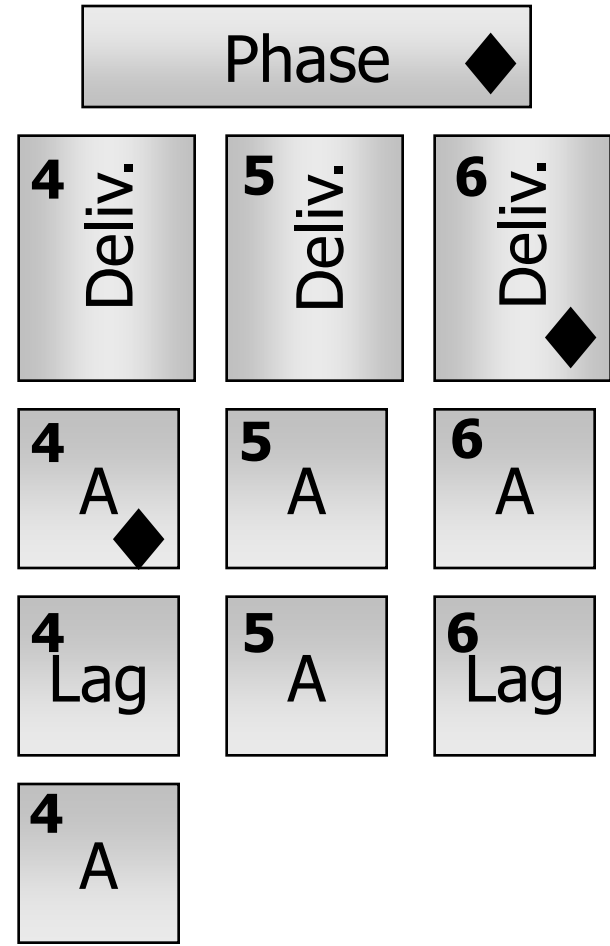
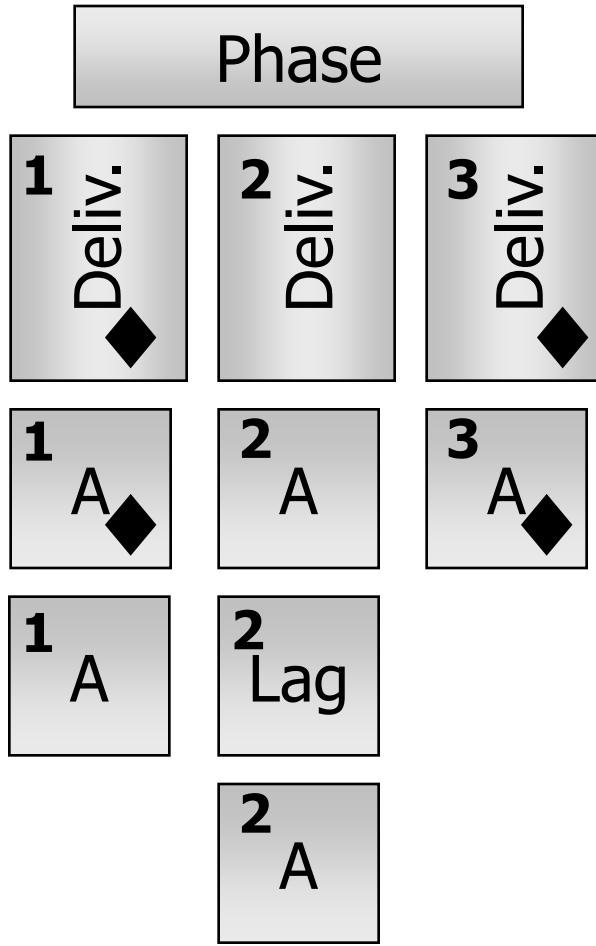


# Party Exercise – Part 1

- ◆ Create a WBS for the planning and execution of a 50<sup>th</sup> Wedding Anniversary Celebration
- ◆ Timing: 25 minutes



# Coded WBS

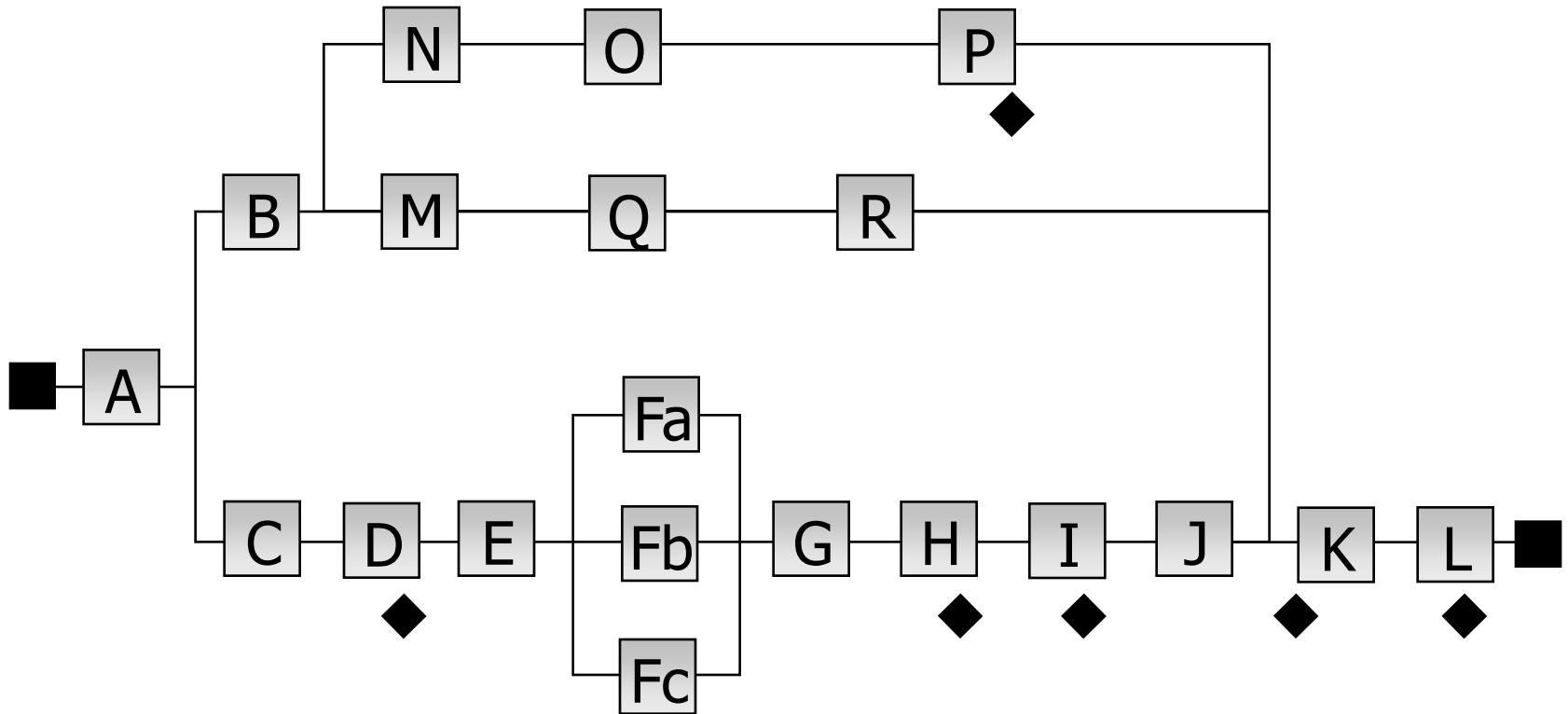


# Party Exercise Part 2

- ◆ Convert your WBS into a Network Diagram
- ◆ Timing: 10 minutes



# Network Diagram



- ◆ Focus is on the CA-PMM
- ◆ Scalability
- ◆ Vocabulary
- ◆ Key concepts
  - WBS
  - Network Diagram

# Project Selection



- ◆ Business problem or opportunity
- ◆ Duration
- ◆ Multiple human resources
- ◆ All team members can be engaged
- ◆ Cannot be completed or underway
- ◆ PM must have 100% attendance



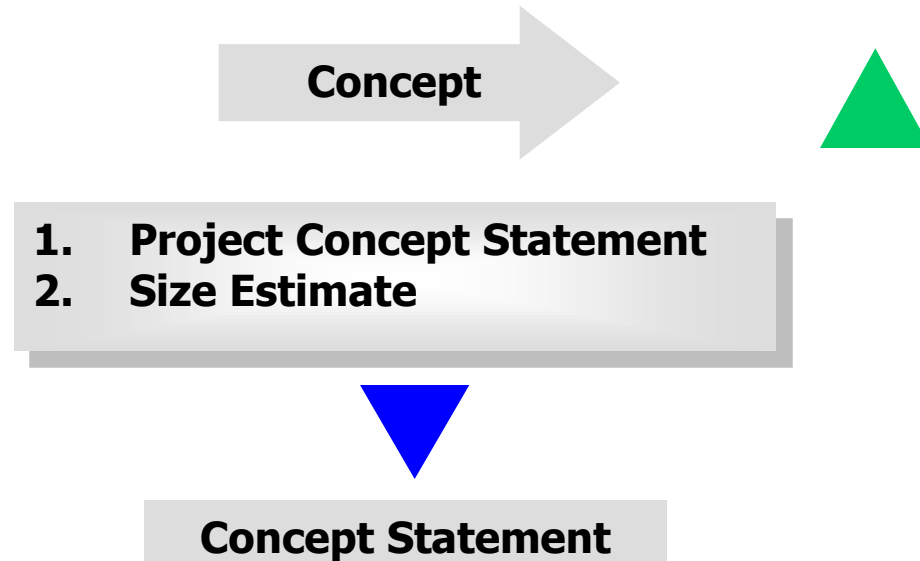
- ◆ Concept Toolkit
  - Concept Statement
  - Size Estimating
  
- ◆ CA-PMM Toolkit
  - Project Information
  - Template Inventory
  - Initiating
  - Planning
  - Executing
  - Closing
  - Acronyms

- ◆ Microsoft Excel® Basics
- ◆ Getting Started
- ◆ Toolkit Contents
- ◆ Workbook Navigation
- ◆ Using the Workbook
- ◆ Saving and Exiting
- ◆ Printing
- ◆ Contact

# Concept Stage

# Concept Stage

- ◆ The purpose of the Concept Stage is to communicate high-level information about a project idea.
- ◆ The major output of the Concept Stage is the Concept Statement.

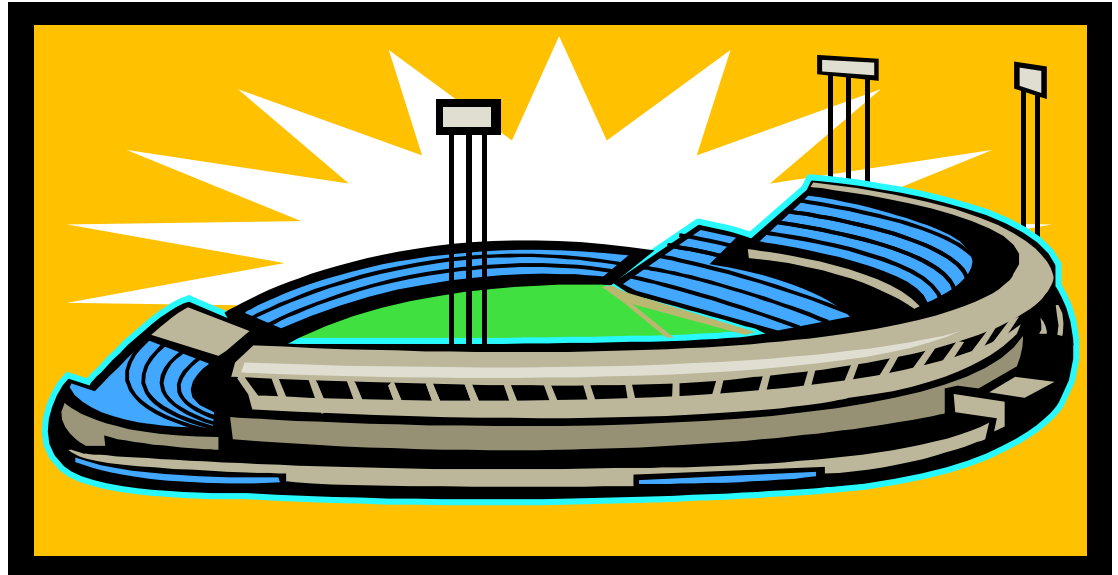


- ◆ Description
- ◆ Need Statement
- ◆ Benefit Statement
  - Tangible
  - Intangible
- ◆ Consistency
- ◆ Impact to Other Agencies
- ◆ Solution Alternatives
- ◆ Recommendations
- ◆ Project Approach

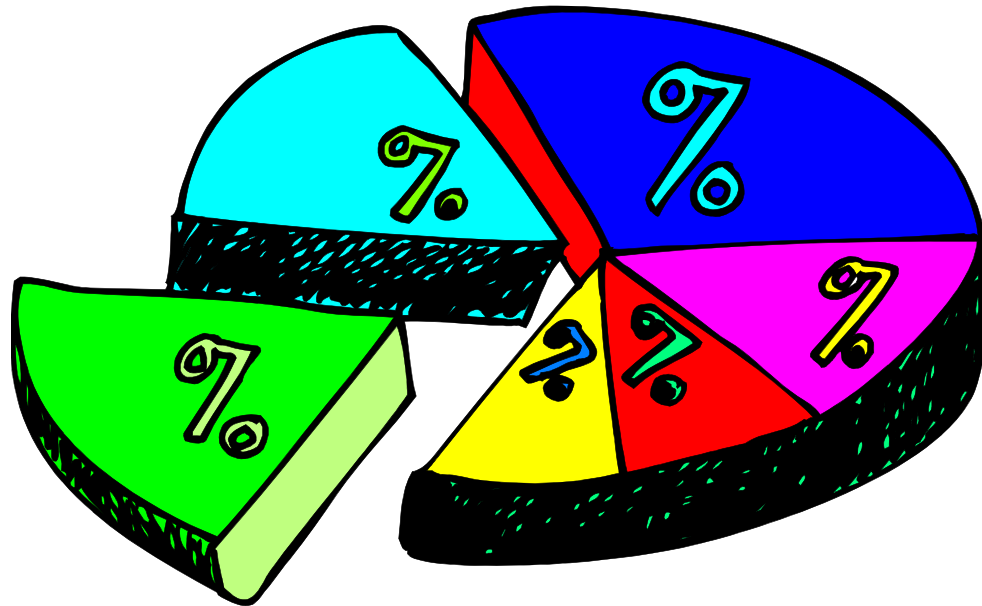
# Concept Statement Exercise

- ◆ Complete a Concept Statement for the project you selected.
- ◆ Timing: 20 minutes

- ◆ High-level estimate of:
  - Cost
  - Duration
  - Resources



# Effort Distribution Estimating Model

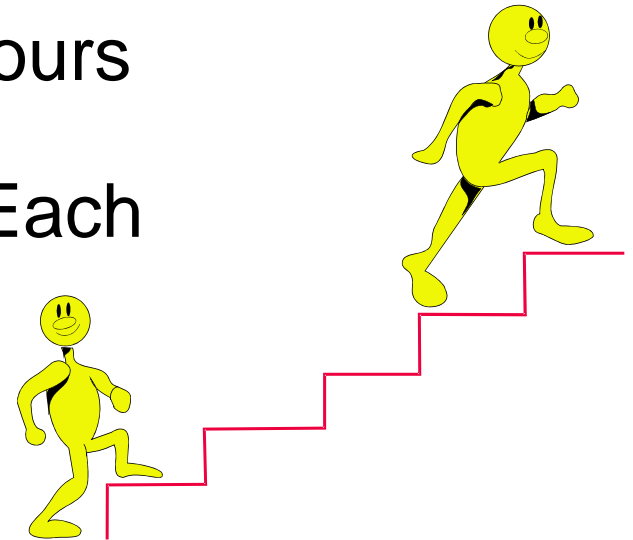


- ◆ Developed during the Concept Stage
- ◆ Supports management decision making
- ◆ Does not have a high level of accuracy
- ◆ Relies on historical data



# Effort Distribution Estimating Steps

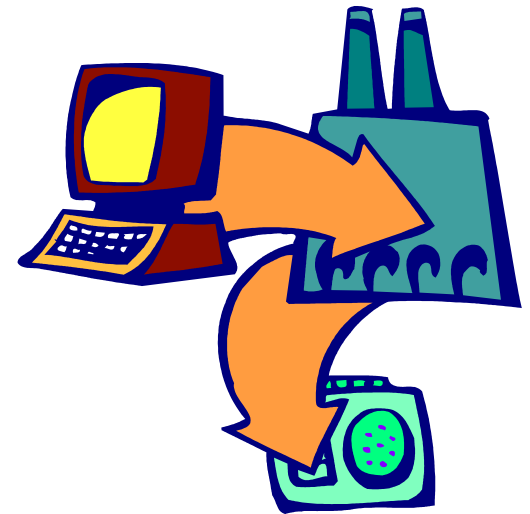
- ◆ Step 1a: Select a Phase-Based Model
- ◆ Step 1b: Calibrate the Model
- ◆ Step 2: Identify a Base Phase
- ◆ Step 3: Develop Effort Estimate for the Base Phase
- ◆ Step 4: Compute Total Project Hours
- ◆ Step 5: Extrapolate the Effort of Each  
Remaining Phase



- ◆ Step 6: Compute Phase Work Months
- ◆ Step 7: Develop Resource Estimate
- ◆ Step 8: Compute Duration
- ◆ Step 9: Prepare Phase-Based Gantt
- ◆ Step 10: Estimate Cost

# Step 1: Phase-Based Model

- ◆ Reflects how effort is distributed across phases
- ◆ Is based on any of the following:
  - Organizational historical data
  - Personal history and experience
  - Another project team
  - Industry data
  - Vendor supplied data



# Step 1a: Phase-Based Model

Phase Number	Phase Name	Model %
1	Procurement	5%
2	Analysis	15%
3	Design	20%
4	Development	30%
5	Test	10%
6	Implementation	15%
7	Transition to M&O	5%

**Total = 100%**

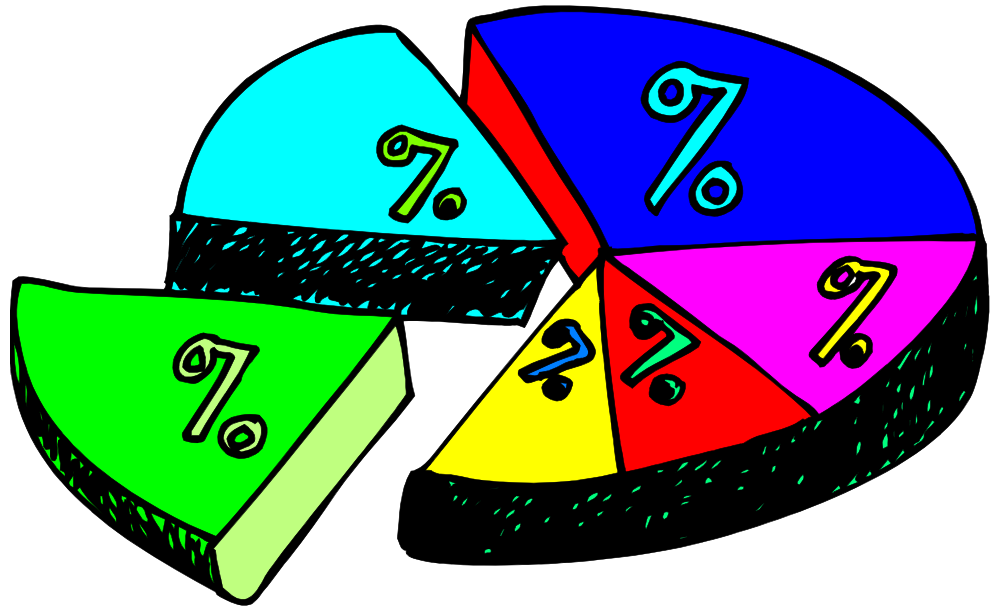
# Step 1b: Model Calibration

Phase Number	Phase Name	Model %
1	Procurement	5%
2	Analysis	15%
3	Design	<b>25%</b>
4	Development	30%
5	Test	<b>15%</b>
6	Implementation	15%
7	Transition to M&O	5%

**Total = 110%**

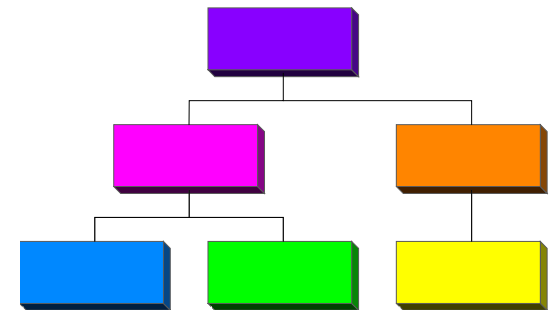
## Step 2: Select Base-Phase

- ◆ The Phase most familiar to you
  - Minimum of 15% of total project effort
  - Ideally at least 30%



## Step 3: Estimate Base-Phase Effort

- ◆ Create a WBS of the base phase
- ◆ Develop effort estimates to complete the base phase using task-based estimates



# Step 4: Total Project Hours

Base Phase	%	Effort Estimate	÷	%	=	Total Project Hours
Development	30%	8500	÷	.30		28333

# Step 5: Phase Effort

Phases	%	Total Project Hours	*	%	=	Effort Estimate
Procurement	5%	28333		.05		1417
Req. Analysis	15%	28333	*	.15	=	4250
Design	<b>25%</b>	28333	*	.25	=	7083
Development	30%	28333	*	.30	=	8500
Test	<b>15%</b>	28333	*	.15	=	4250
Implementation	15%	28333	*	.15		4250
Transition to M&O	5%	28333	*	.05	=	1417
Total Estimated Hours 31,167						

# Step 6: Phase Work months

- ◆ Productive hours per work month/FTE
  - Prod Hours/Day \* Prod Days/Month
  
- ◆ Example:
  - $6.5 * 19 = 123 \text{ hrs Per Month}$

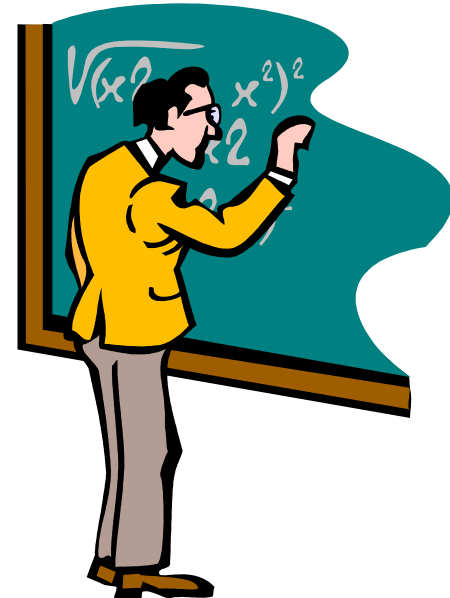


# Step 6: Phase Work months

Phase	Effort	÷	FTE Hrs/mo	=	Work Months
Procurement	1417	÷	123	=	11.5
Req. Analysis	4250	÷	123	=	34.6
Design	7083	÷	123	=	57.6
Development	8500	÷	123	=	69.1
Test	4250	÷	123	=	34.6
Implement	4250	÷	123	=	34.6
Transition to M&O	1417	÷	123	=	11.5

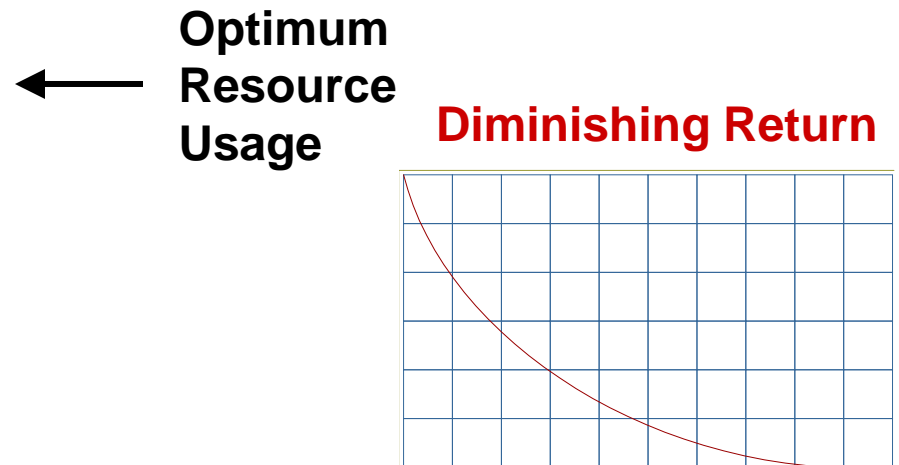
# Step 7: Resource Estimates

- ◆ Number of Optimal Full Time Equivalent (OFTE) resources
- ◆ Formula:  $\text{OFTE} = \sqrt{\text{Work Months}} + 1$



# Step 7: Resource Estimates

- ◆ 15 tasks
- ◆ Each task can be completed by one person in one day
- ◆ All of the tasks are independent of each other
- ◆ Resources Needed
  - 1 Person 15 days
  - 2 People 8 days
  - 3 People 5 days
  - 4 People 4 days
  - 5 People 3 days
  - 6 People 3 days
  - 7 People 3 days
  - 8 People 2 days



# Step 7: Resource Estimates

$$\text{OFTE} = \sqrt{\text{Work Months}} + 1$$

Phase	Work Months	Square Root	+	1	=	OFTE
Procurement	11.5	3.4	+	1	=	4.5*
Req. Analysis	34.6	5.9	+	1	=	7
Design	57.6	7.6	+	1	=	8
Development	69.1	8.3	+	1	=	9.5
Test	34.6	5.9	+	1	=	7
Implement	34.6	5.9	+	1	=	7
Transition to M&O	11.5	3.4	+	1	=	4.5

\*round to the nearest half

# Step 8: Phase Duration (OFTE)

Phase	Work Months	÷	OFTE	=	Estimated* Duration
Procurement	11.5	÷	4.5	=	2.5*
Req. Analysis	34.6	÷	7	=	5
Design	57.6	÷	8	=	7
Development	69.1	÷	9.5	=	7.5
Test	34.6	÷	7	=	5
Implement	34.6	÷	7	=	5
Transition to M&O	11.5	÷	4.5	=	2.5

**\*round to the nearest half**

## Step 8: Phase Duration (PFTE)

- ◆ Probable full time equivalent (PFTE) resources
- ◆ The number of PFTE should be equal to or less than the OFTE



# Step 8: Phase Duration (PFTE)

Phase	Work Months	÷	PFTE	=	Estimated Duration
Procurement	12.4	÷	3	=	4
Req. Analysis	37.3	÷	6	=	6
Design	62.1	÷	5.5	=	11.5
Development	74.6	÷	7.5	=	10
Test	37.3	÷	4	=	9.5
Implement	37.3	÷	4	=	9.5
Transition to M&O	12.4	÷	2	=	6

## Step 8: Project Management Effort

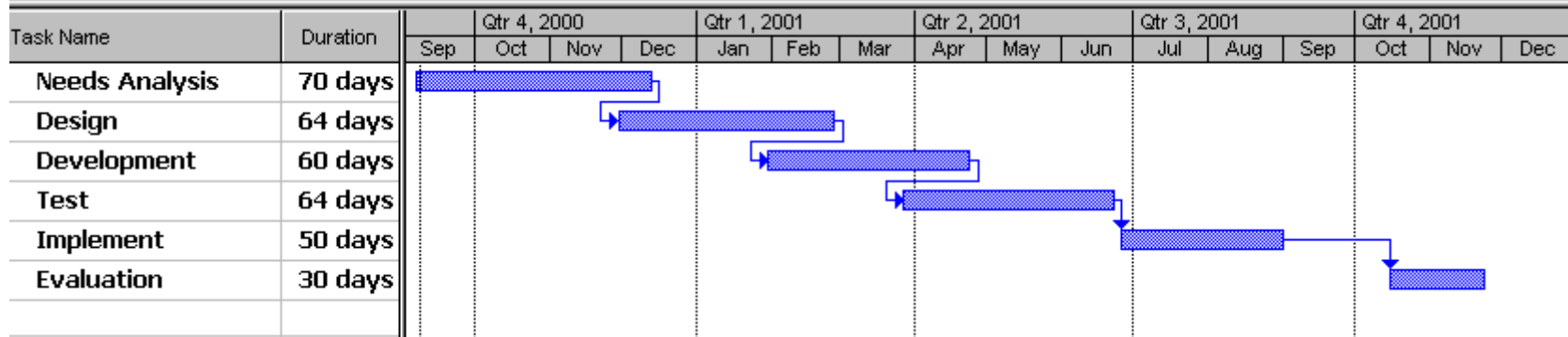
- ◆ Project management effort adds 5% – 20% to total project effort
- ◆ Does not necessarily impact duration; runs in parallel with project work



# Step 8: Project Management Effort

Phase	PM Effort
Procurement	10%
Req. Analysis	20%
Design	20%
Development	15%
Test	10%
Implement	15%
Transition to M&O	10%

# Step 9: Phase-Based Gantt



**The durations plotted above include additional lag days incorporated by the project manager.**

# Step 10: Cost Estimating

- ◆ Burdened rate
- ◆ Estimated effort for each phase
- ◆ Compute the cost estimate for each phase
- ◆ Consider additional expenses

**Estimated Effort x Burdened Rate = Estimated Cost**

# Step 10: Cost Estimating

PH	EH	*	1+ PM	=	TEE	*	BR	=	LC	+	AE	=	TC
Pro	857	*	1.1	=	943	*	\$95	=	\$90K	+	\$5K	=	\$95K
An	2571	*	1.2	=	3085	*	\$95	=	\$293K	+	\$35K	=	\$328K
Des	3429	*	1.2	=	4115	*	\$95	=	\$391K	+	\$10K	=	\$401K
Dev	5143		1.15		5914		\$95		\$562K	+	\$38K		\$600K
Tst	1714	*	1.10	=	1885	*	\$95	=	\$179K	+	\$15K	=	\$194K
Imp	2571	*	1.15	=	2957	*	\$95	=	\$281K	+	\$25K	=	\$306K
M&O	857	*	1.10	=	943	*	\$95	=	\$90K	+	\$5K	=	\$95k
Total Cost												\$2006K	
												<b>+35% \$702K</b>	
Estimated Project Cost												\$2708K	

# Size Estimating Template

## Estimating Summary

Project Name:   
OCIO Project #:   
Department:   
Revision Date:

Project Phases	Effort Hours	PM Effort %	Total Effort Estimate	Internal Labor Costs (\$)	External Labor Costs (\$)	Prof. Fees (\$ 000)	Misc. Fees (\$ 000)	SW Costs (\$ 000)	HW Costs (\$ 000)	Estimated Costs (\$)
Procurement	0	0	0	0	0	0	0	0	0	0
Requirements Analysis	0	0	0	0	0	0	0	0	0	0
Design	0	0	0	0	0	0	0	0	0	0
Development	0	0	0	0	0	0	0	0	0	0
Test	0	0	0	0	0	0	0	0	0	0
Implement	0	0	0	0	0	0	0	0	0	0
Transition to M&O	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

[Click to Start](#)

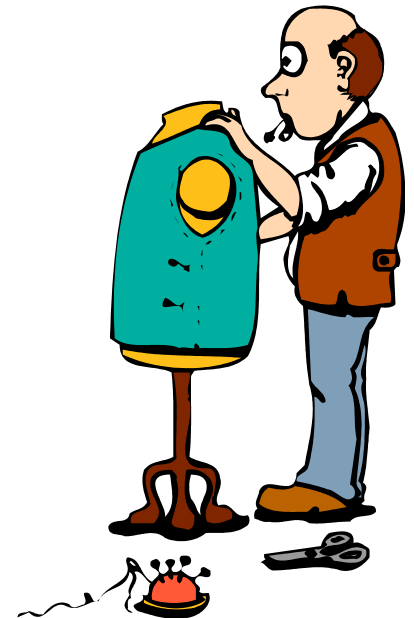
Estimated Project Cost   
35%   
**Total Estimated Project Cost**

Est. Project Duration (Months)   
35%   
**Total Est. Project Duration (Months)**

# Size Estimate Exercise

- ◆ Complete the size estimating templates for your project.
- ◆ Timing: 30 minutes

- ◆ Medium to large projects
- ◆ Well-defined lifecycle methodology
- ◆ Not suitable for new or emerging technology projects
- ◆ Suitable for major enhancements



# Initiating Stage

## ◆ Purpose

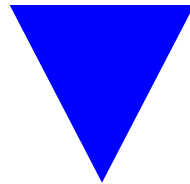
- Authorize the start of a new project or the start of a new project phase
  - Often begun by the organization that is requesting the product or service
- 
- ◆ The major output of the Initiating Stage is the Project Charter.



**Initiating**



- 3. Project Charter**
- 4. Issue Log**

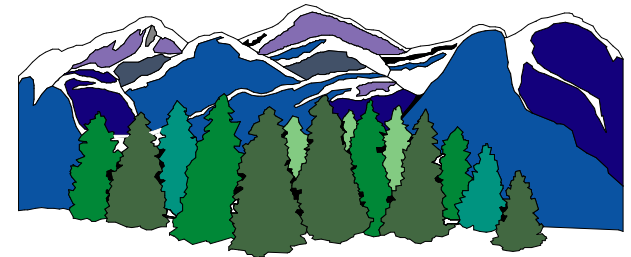


**Project Charter**

# What is a Project Charter?

“A document issued by the project initiator or sponsor that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.”

*PMBOK® Guide, Third Edition*



- ◆ Background
- ◆ Objectives

- ◆ For purposes of this session we assume:
  - The **Concept Statement** for the project is complete and approved.
  - The **project manager** is assigned and has appropriate **authority**.

- ◆ Click on the Project Charter Tab in the Excel Workbook
- ◆ The template is divided into sections
  - General Information
  - Complexity Assessment
  - High Level Project Organization
  - Project Priorities
  - Assumptions and Risks
  - Organizational/Functional Stakeholders
  - Charter Approvals

- ◆ Background
  - Business problem
  - Benefits
  - Consequences if not done



Objective must be:

- S*pecific**
- M*easurable**
- A*chievable**
- R*elevant**
- T*ime-Bound**



## ◆ Payroll Outsourcing Project

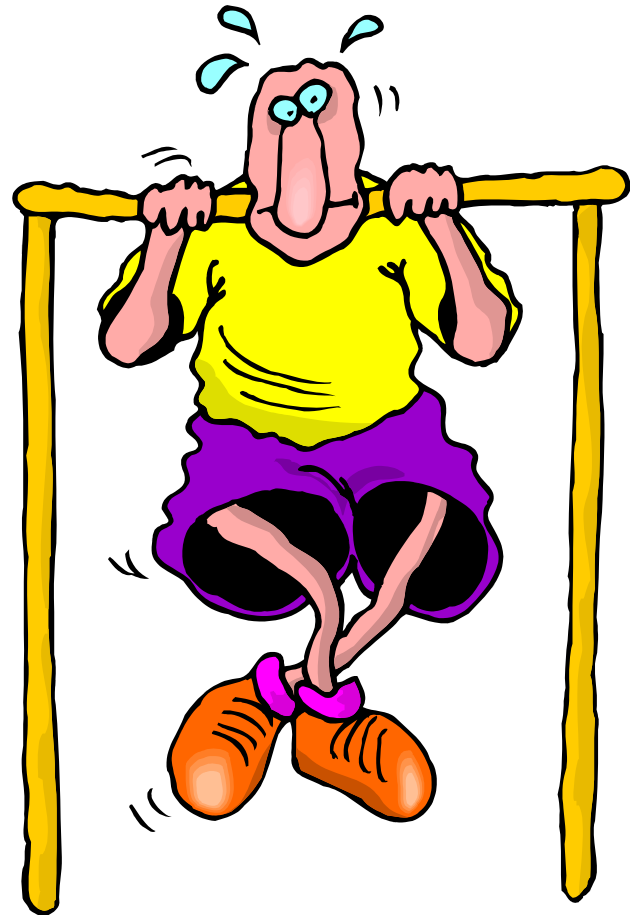
<b><i>Critical Success Indicators</i></b>	<b><i>Metrics</i></b>
Cost reduction	-25% relative to last year's payroll cost
On-time payroll delivery	On-time delivery >99.9% to all payroll recipients
Payroll errors	<0.1%
Security	Provision of contract and verified by annual security audit

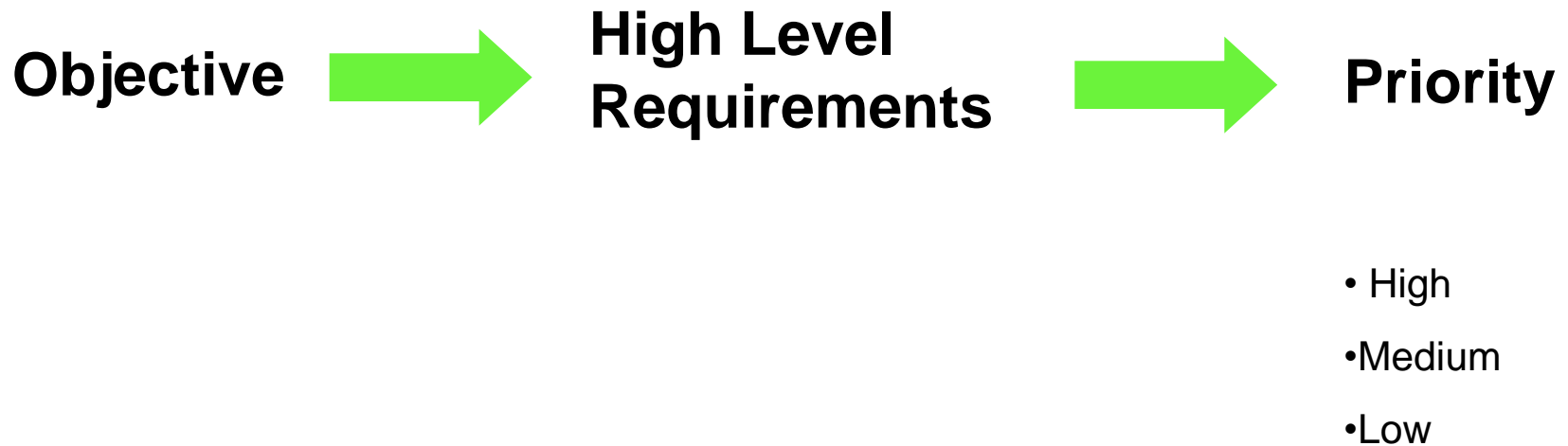
- ◆ Solution
  - Alternatives
  - Solution chosen



# Exercise

- ◆ Complete the Background, Objectives, and Solution sections of the Project Charter Template.
- ◆ Timing: 15 minutes





- ◆ Complete the High Level Requirements section of the Project Charter
- ◆ Timing: 15 minutes



- ◆ “A high-level definition of the project including the project and deliverable requirements, the product requirements, the boundaries of the project, the methods of acceptance, and high-level scope control.”

*PMBOK® Guide, Third Edition*

- ◆ **Product Deliverables**
  - The “things” that make up the product of the project
  
- ◆ **Process Deliverables**
  - The “things” we need to produce to comply with the process

# Three Areas of Scope

- ◆ Current Scope
- ◆ Future Opportunity
- ◆ Outside of Scope

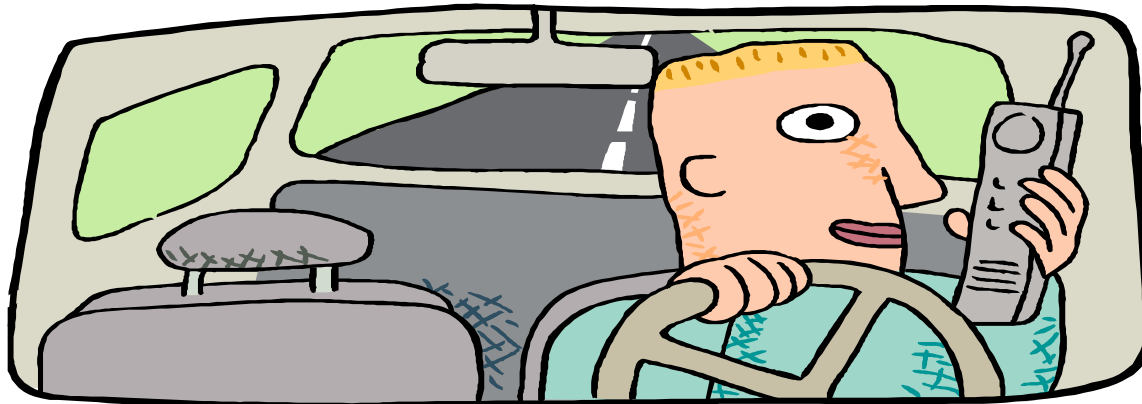


- ◆ Products
- ◆ Features
- ◆ Users
- ◆ Locations



# Function vs. Feature

Product	Key Product Deliverables	Features
<ul style="list-style-type: none"><li>♦ Car</li><li>♦ Website</li></ul>	<ul style="list-style-type: none"><li>♦ Engine, wheels, steering wheel</li><li>♦ Database, user interface, navigation</li></ul>	<ul style="list-style-type: none"><li>♦ CD player, power steering, air conditioning</li><li>♦ Streaming audio or video</li></ul>



# Future Opportunities

Current Scope	Future Opportunity	Recommended Scope Adjustment
New house	Swimming pool	Piping sized to accommodate future pool



# Outside of Scope

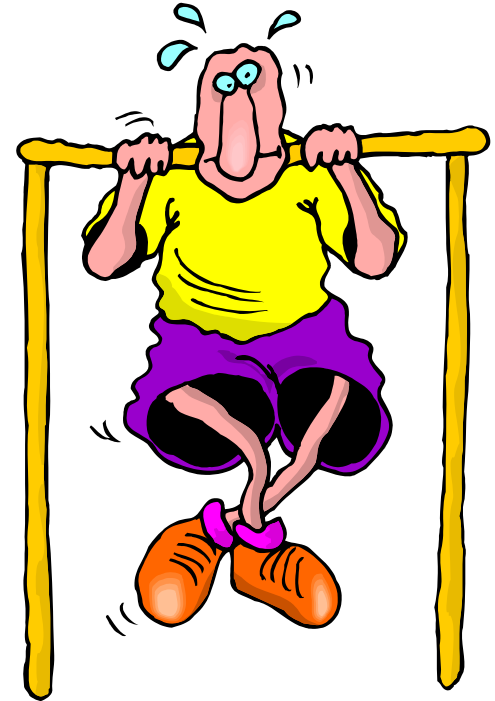
Outside of Scope	Rationale
Exterior fence	Will be handled under a separate contract with a fencing specialist

# Summary Milestones

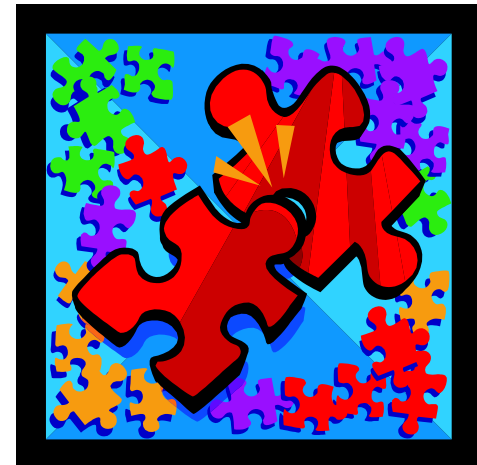
- ◆ Summary milestones are typically the big milestones that senior managers track.
- ◆ Referred to as “summary” milestones because you roll up the detail in order to produce progress reports regarding the achievement of the milestone.

# Preliminary Scope Exercise

- ◆ Complete the Preliminary Scope Statement section of the Project Charter
- ◆ Timing: 20 minutes



- ◆ Impact the project will have on existing systems, processes, and/or projects
- ◆ Impact that existing systems, processes, and/or projects will have on this project
- ◆ Will potentially add work to the scope of the project



# Impact Assessment Template

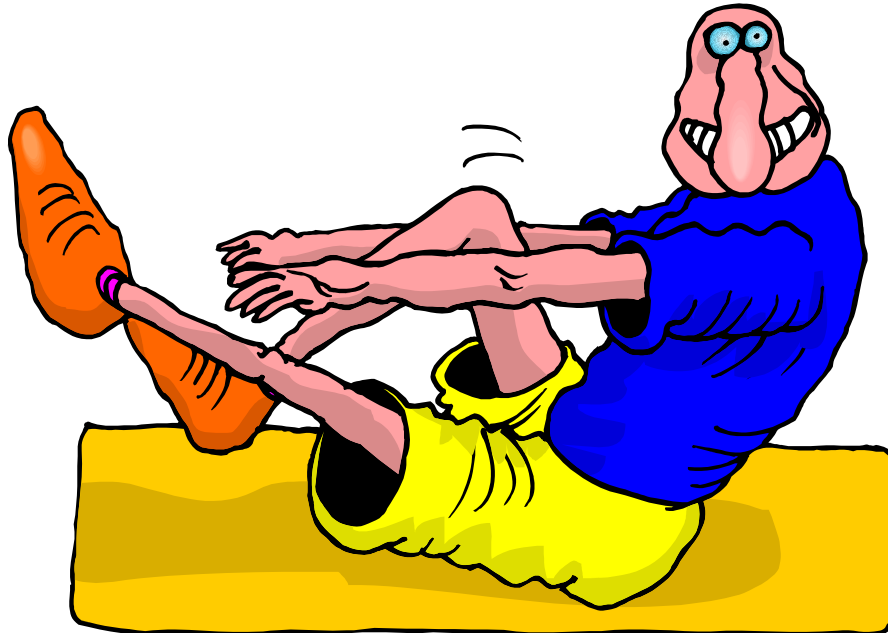
System, Process, Project	Nature of Impact	Owner	Action Required	Due

## ♦ Deadline

- Is there a deadline for this project?
- What are the reasons for this deadline?
- What happens if we miss the deadline?
- What trade-offs are possible?

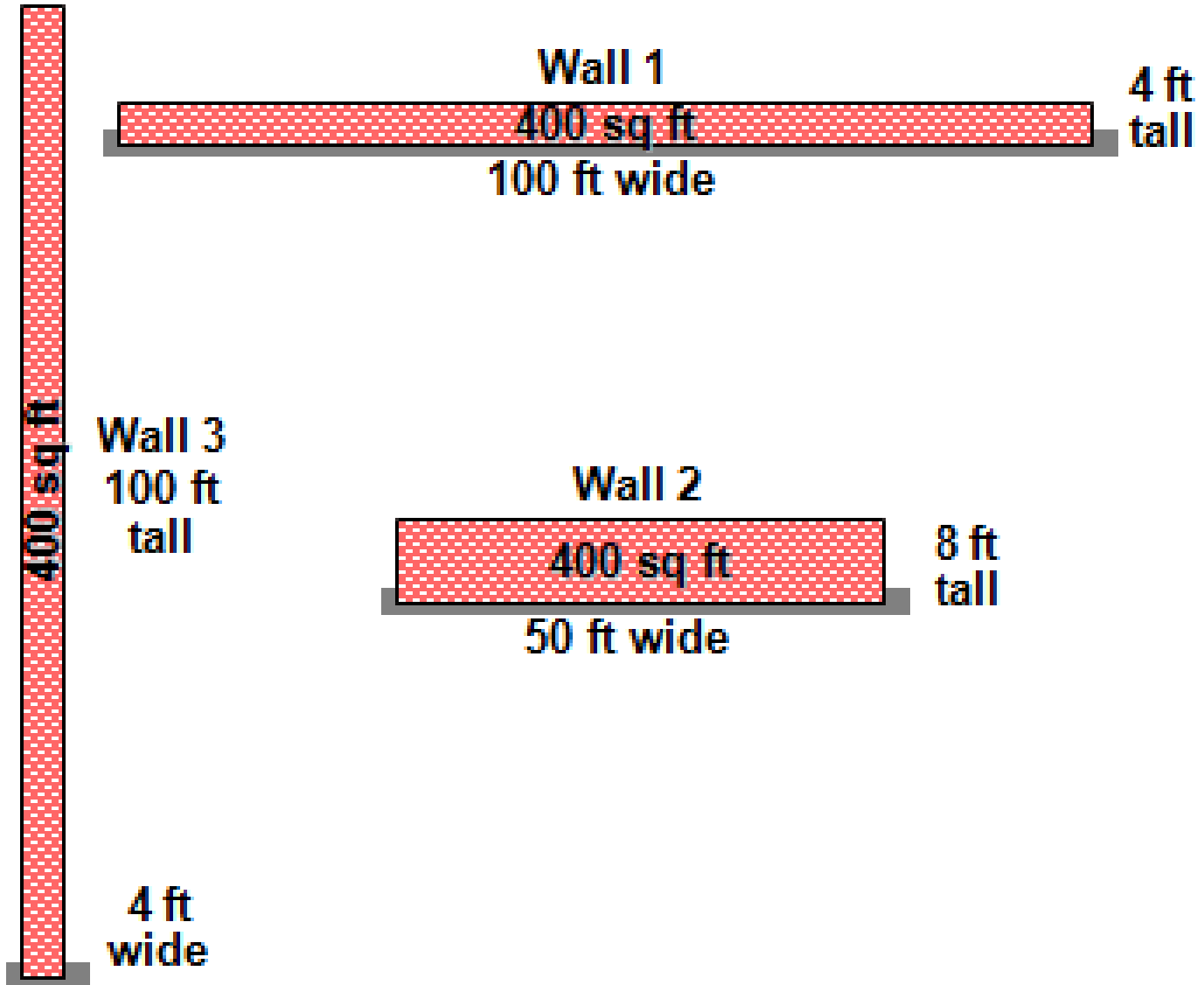


- ♦ Working as a team, complete the Impact Assessment and Deadline sections of the Project Charter Template.
- ♦ Timing: 15 minutes

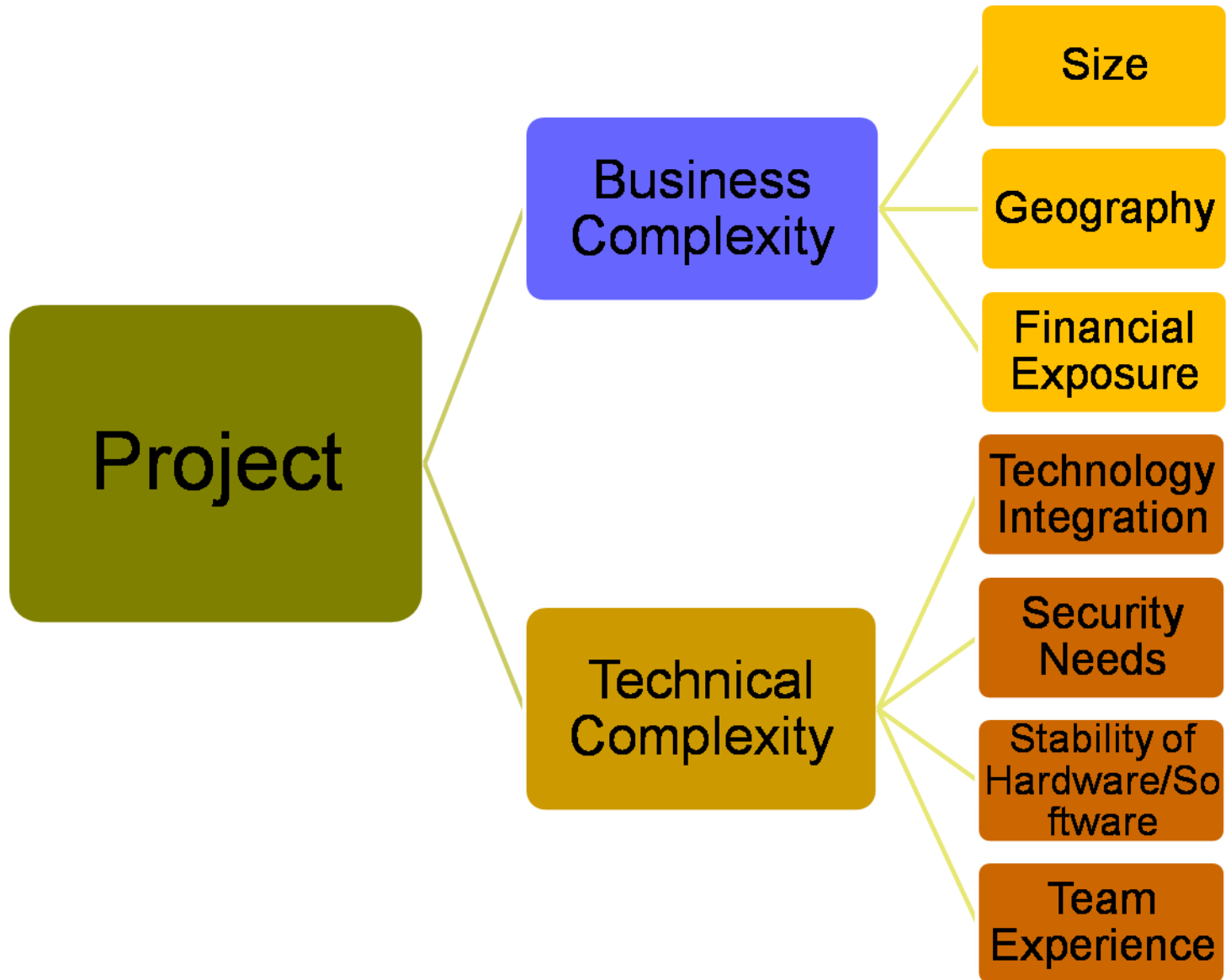


- ◆ Knowing the Complexity of a project will help you:
  - Plan the project
  - Estimate costs and duration
  - Make staffing decisions

# Complexity Example



# Project Complexity Assessment



# Project Complexity Assessment

- A tailored attribute list
- A complexity continuum
- Score the complexity of the individual attributes
- Compute the complexity average for business and technical aspects of project
- Plot the resulting points on a complexity chart

# Computing Complexity

$$(AV+AV+AV+AV) / NA = \text{Business Complexity}$$

- Add all of the assessed values of the business attributes (AV)
- Divide the total assessed value by the number of non-zero attributes (NA)
- Repeat the process for Technical Attributes

$$(AV+AV+AV+AV) / NA = \text{Technical Complexity}$$

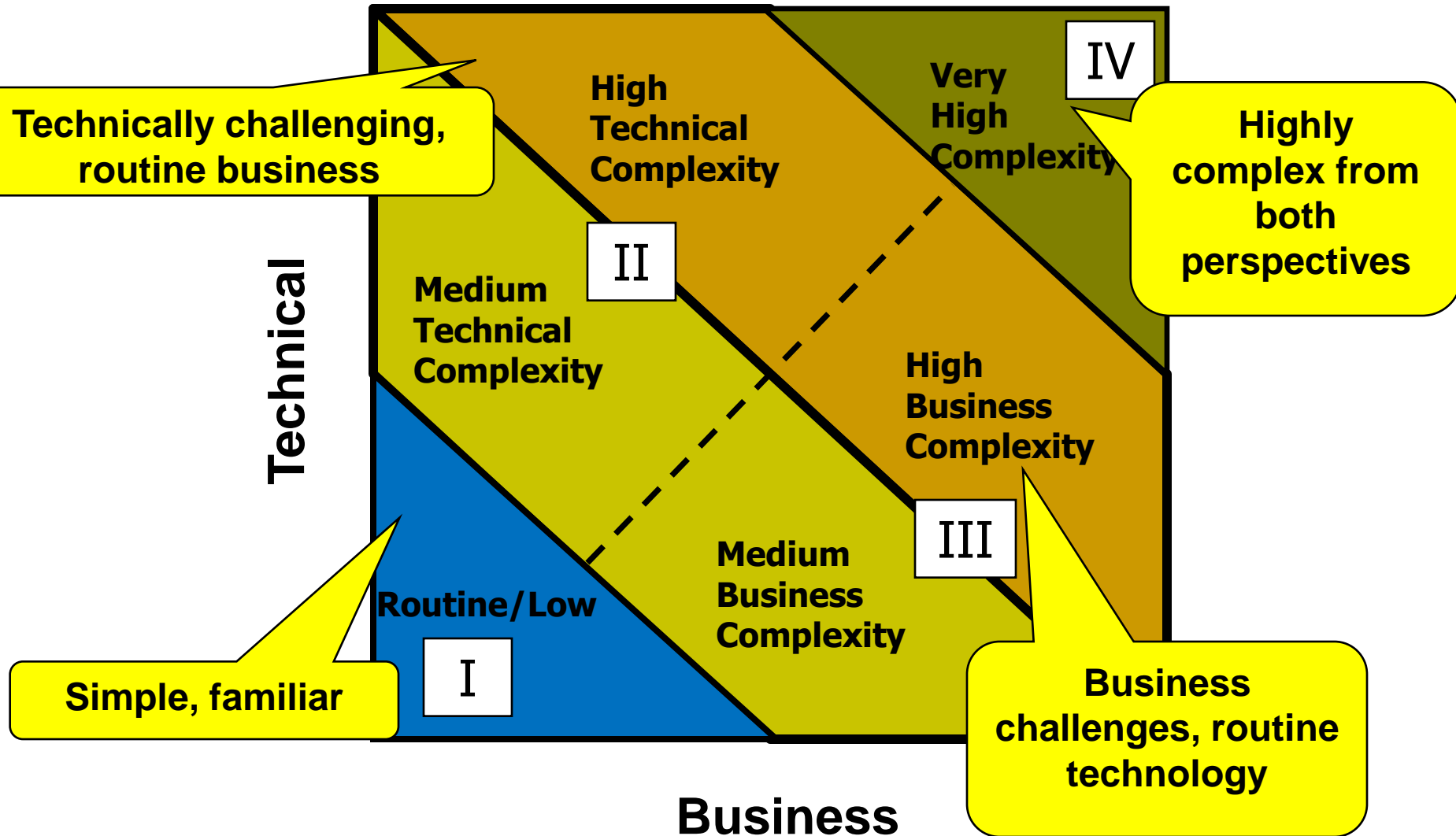
# Business Complexity Template

Low Complexity		Business Attribute		High Complexity	Rating
0	1	2	3	4	
Static		Business rules		Changing	0
Static		Current Business Systems		Changing	0
Known and Followed		Decision Making Process		Not Known	0
Low		Financial Risk to State		High	0
Local		Geography		State Wide	0
Clear and Stable		High Level Requirements		Vague	0
Few & Routine		Interaction with Other Departments and Entities		Many and New	0
None		Impact to Business Process		High	0

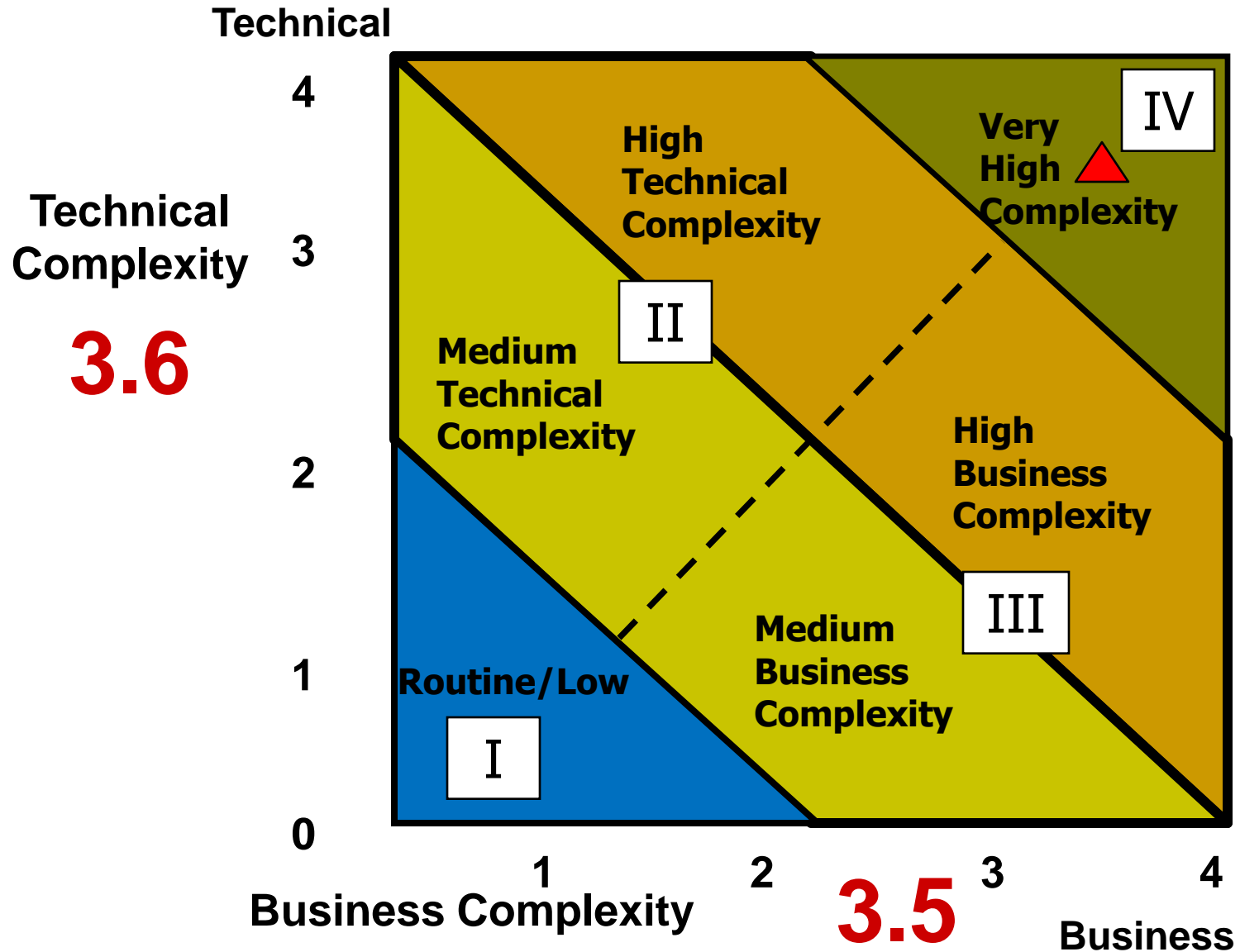
# Technical Complexity Template

Low Complexity		Technical Attribute		High Complexity	Rating
0	1	2	3	4	
Local		Communications		State wide	0
Established		Delivery Mechanism		New	0
Local		Geography		State wide	0
Proven		Hardware		New	0
Stand-alone		Level Of Integration		Tightly Integrated	0
Proven/Stable		Networks (L/W)		New	0
In place		New Technology Architecture		Not in place	0
9-5, Mon-Fri		Operations		24-hour, 7-day	0
Expert		PM Technical Experience		Novice	0
Established and in use		Scope Management Process		None	0
Light		Security		Tight	0
Proven		Software		New	0
Established and In Use		Standards And Methods		None	0
Experienced		Team		Inexperienced	0
High		Tolerance To Fault		Low	0
Low		Transaction Volume		High	0

# Complexity Zones

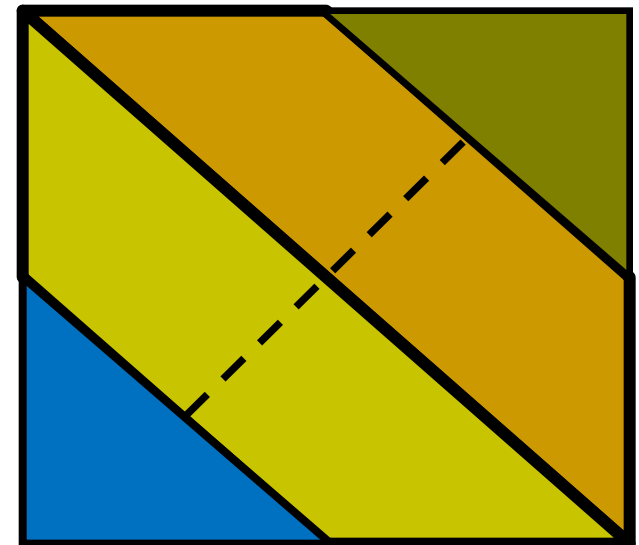


# Project Complexity Example

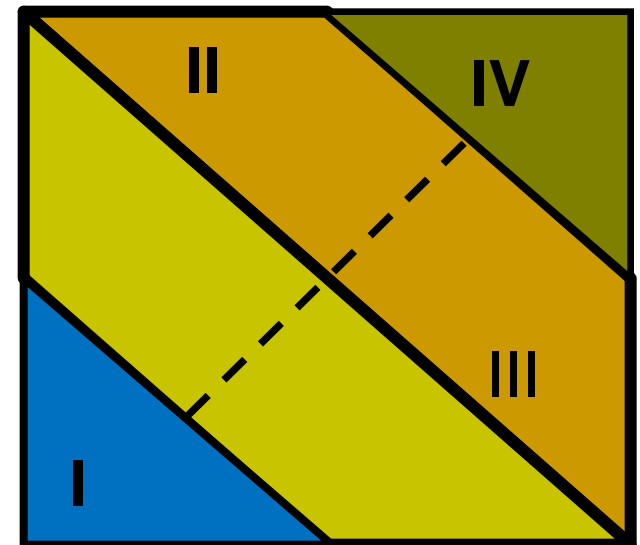


# Complexity Analysis Exercise

- ◆ Complete the Complexity Analysis for your project.
- ◆ Plot your project's complexity on the instructor's graph (flip chart)
- ◆ Timing: 20 minutes



- ◆ Staffing decisions
- ◆ PM assignment
- ◆ Project portfolio
- ◆ Budget reserve



# Suggested PM Skill Set Guidelines

Complexity		Duration		Budget		Resources	
<input checked="" type="radio"/>	Zone 1	<input checked="" type="radio"/>	< 6 months	<input checked="" type="radio"/>	<\$500K	<input checked="" type="radio"/>	< 5
<input type="radio"/>	Zone II, Medium Zone III, Medium	<input type="radio"/>	< 1 year	<input type="radio"/>	<\$1M	<input type="radio"/>	<10
<input type="radio"/>	Zone II, High Zone III, High	<input type="radio"/>	>1 year; < 3 years	<input type="radio"/>	>\$1M; <\$5M	<input type="radio"/>	11 – 20
<input type="radio"/>	Zone IV	<input type="radio"/>	>3 years; <10 years	<input type="radio"/>	>\$5M; <\$100M	<input type="radio"/>	21 – 40
		<input type="radio"/>	>10 years	<input type="radio"/>	>\$100M	<input type="radio"/>	40+

## PM Level: Novice

**Experience:** Minimum 1 year working as a key team member on an IT project.  
Technical experience commensurate with the proposed technology.

**Professional Knowledge:** Understands the CA-PMM and department's methodology.

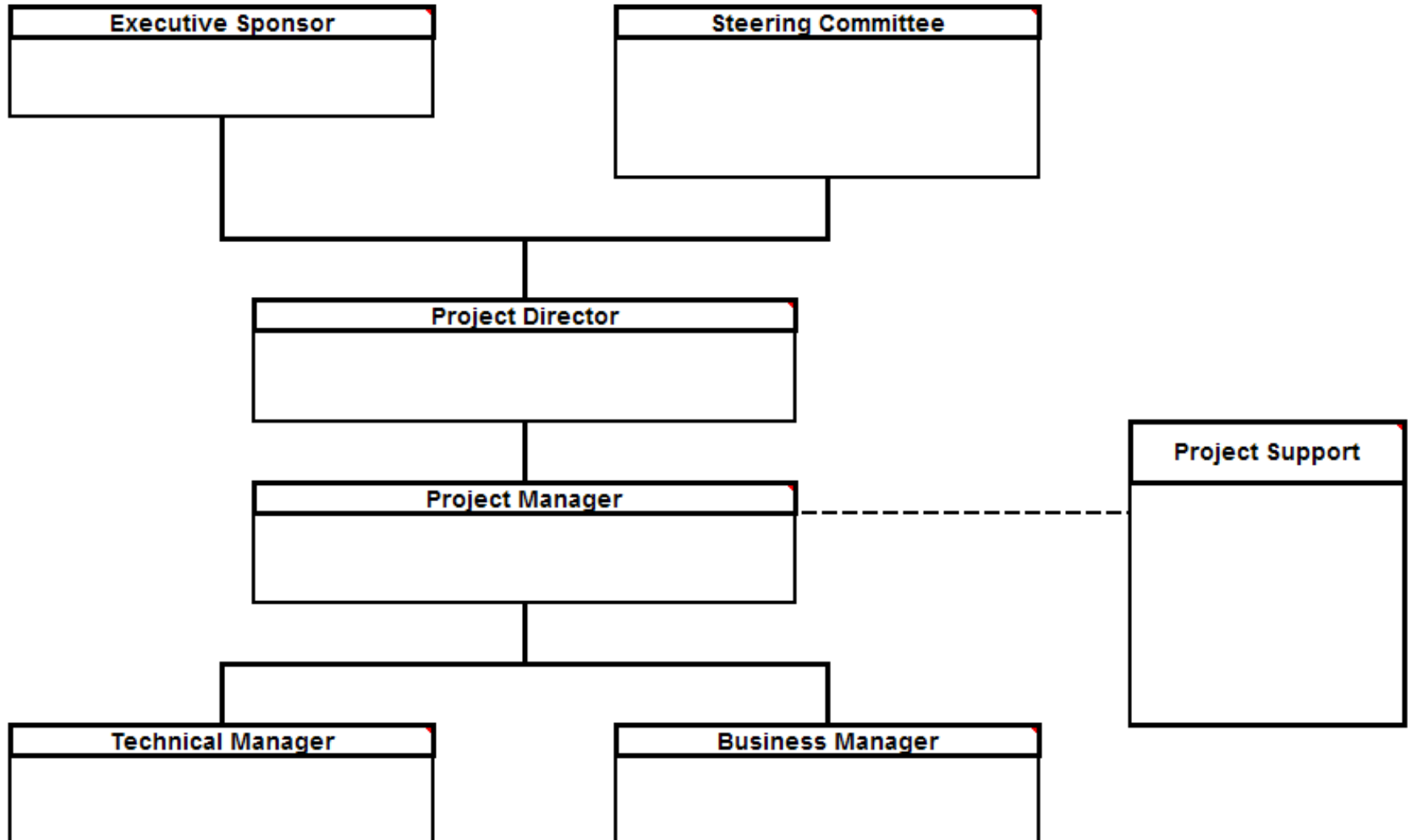
## **For Oversight Purposes:**

Zone I = Low Criticality/Risk

Zones II and III = Medium Criticality/Risk

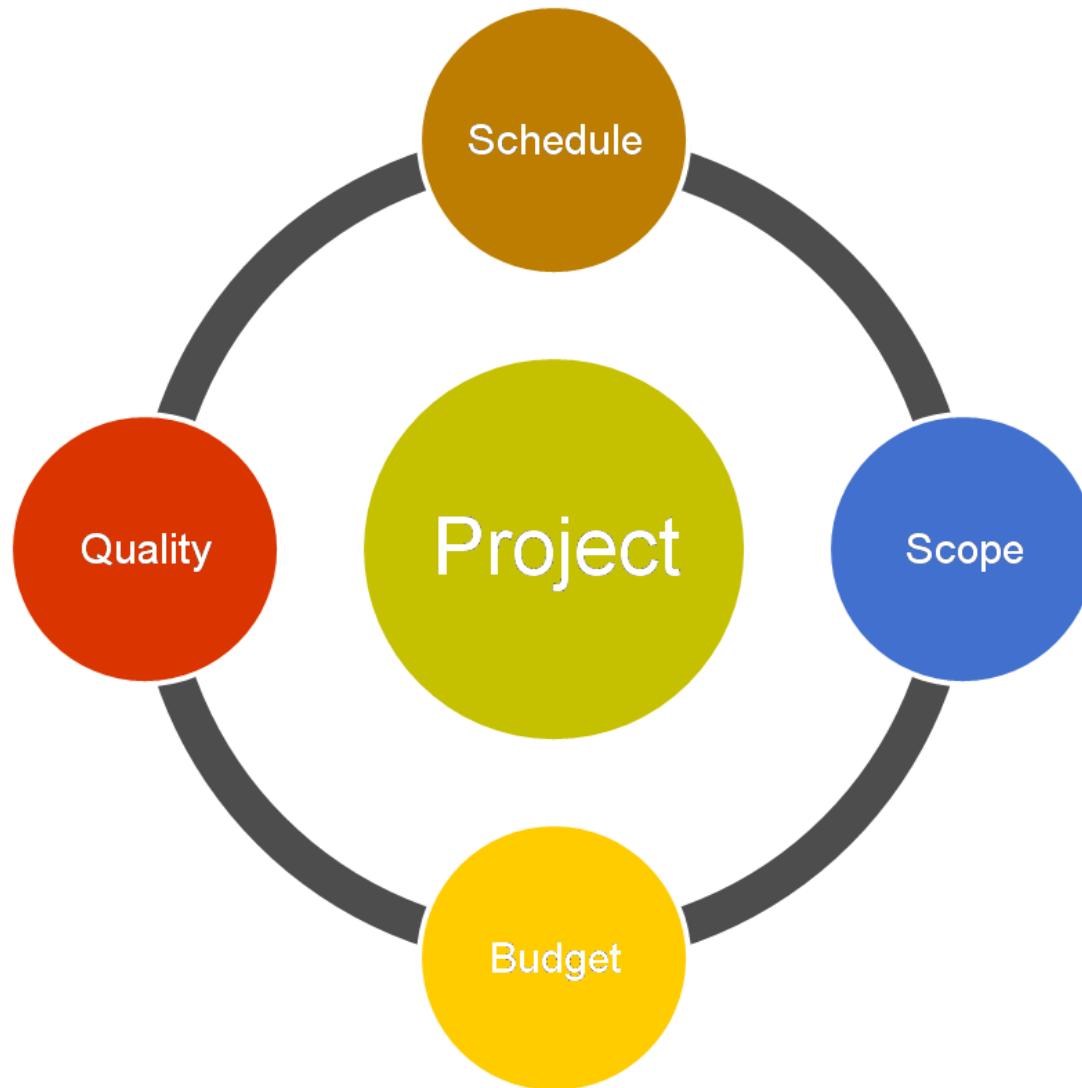
Zone IV = High Criticality/Risk

# High-Level Project Organization



- ◆ Complete a High Level Project Organization Template for your project
- ◆ Provide the individual or group names who will be filling the appropriate roles
- ◆ Timing: 10 minutes

# Priority Analysis

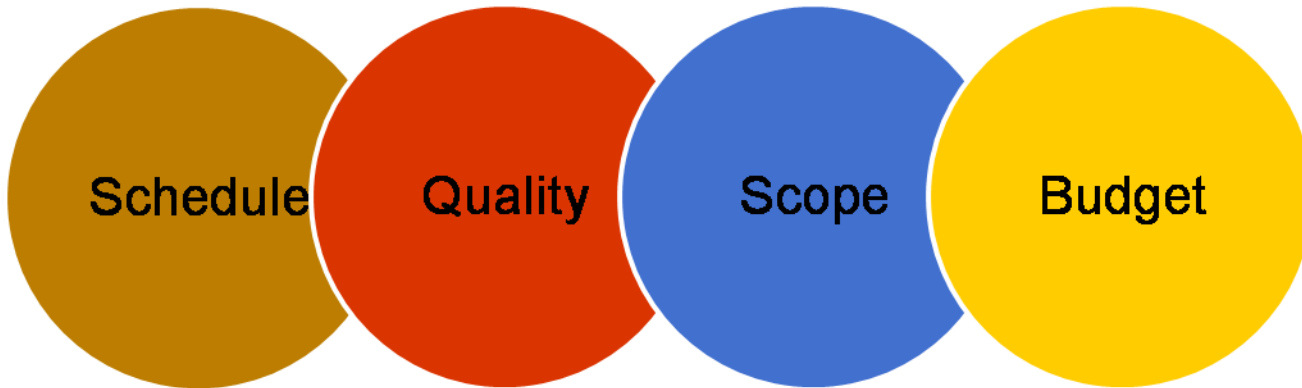


# Project Priority Analysis

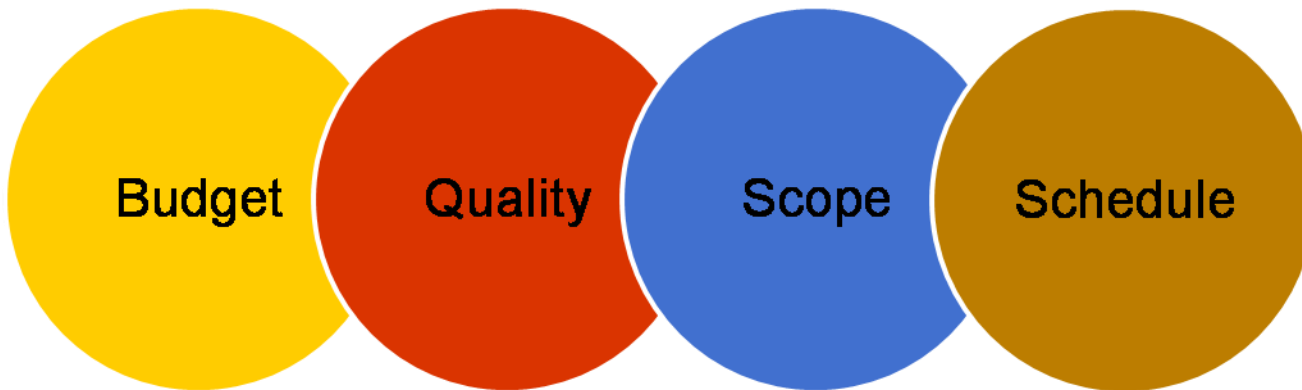
**Rank order the constraints: 1 is the most important and 4 is 4<sup>th</sup> most important**



## Example 1



## Example 2



## Example 3



# Definition of Quality

- ◆ Be sure you have a good understanding of “quality”
- ◆ Different stakeholders may have different definitions of quality
- ◆ Discuss quality with your customers and quality assurance group
- Develop a master list of quality attributes for the types of projects your organization undertakes
- Tailor it to individual projects



# Ground Rules for Ranking

Rank order the four constraints so that no two have the same importance...

Ranking Example 1				
Attributes	1st	2nd	3rd	4th
Schedule	√			
Scope			√	
Budget				√
Quality		√		

**What happens when all components rank  
#1...**

Ranking Example 1				
Attributes	1st	2nd	3rd	4th
Schedule	√			
Scope	√			
Budget	√			
Quality	√			

# Multiple Stakeholder Priorities

**When multiple Stakeholders are involved, the Project Manager must facilitate the alignment of the project priorities among various stakeholders.**

- **Step 1** - Identify the stakeholders who need to be consulted regarding the project at hand.
  - Project managers should always work with the project sponsor when identifying the key stakeholders.



# Multiple Stakeholder Priorities

- **Step 2** - Specifically document selected stakeholders' priorities

	<i>Sponsor</i>	<i>Key Stakeholder</i>	<i>Key Stakeholder</i>	<i>Key Stakeholder</i>
<b>Schedule</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>3</b>
<b>Scope</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>4</b>
<b>Budget</b>	<b>1</b>	<b>4</b>	<b>4</b>	<b>2</b>
<b>Quality</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>

# Multiple Stakeholder Priorities

- **Step 3** - Use appropriate information to move stakeholders toward a common view of the Project priorities.

	<i>Sponsor</i>	<i>Key Stakeholder</i>	<i>Key Stakeholder</i>	<i>Key Stakeholder</i>	<i>Final Ranking</i>
<b>Schedule</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>?</b>
<b>Scope</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>?</b>
<b>Budget</b>	<b>1</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>?</b>
<b>Quality</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>?</b>

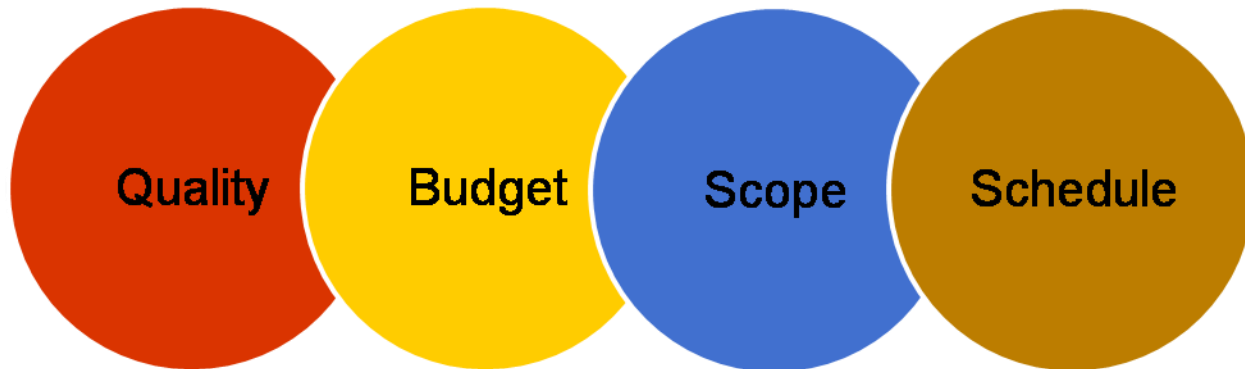
# Multiple Stakeholder Priorities

- **Step 3** – cont.
  - When there is no common view, determine who is the most influential stakeholder and if their priorities should prevail.
  - If this is not practical, the sponsor will decide on the priority of the rankings.

	<i>Sponsor</i>	<i>Key Stakeholder</i>	<i>Key Stakeholder</i>	<i>Key Stakeholder</i>	<i>Final Ranking</i>
<b>Schedule</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Scope</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>4</b>
<b>Budget</b>	<b>1</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>2</b>
<b>Quality</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>

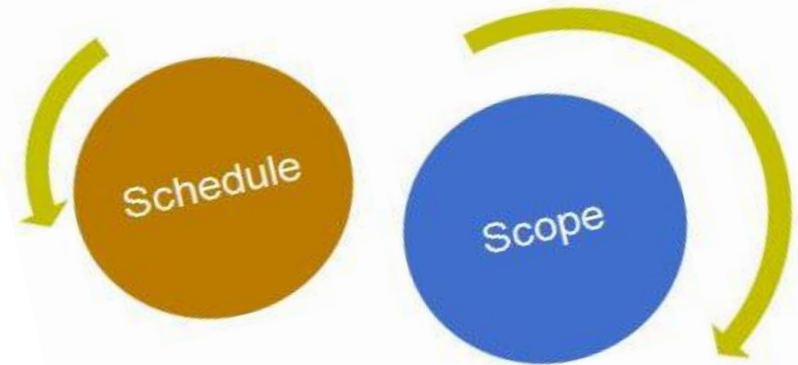
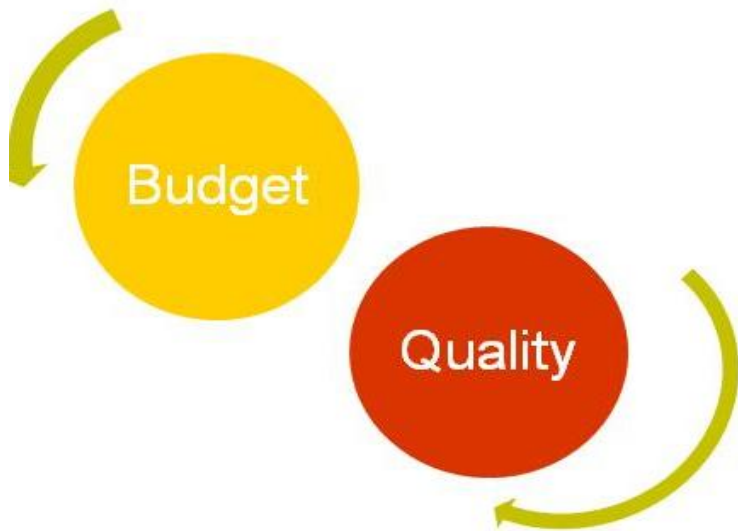
**Once the priorities have been ranked...**

- **Step 4** - Establish a governing set of priorities for the project and use them to guide your decisions.



# A Change Project Priorities

- ◆ Priorities can shift during the product development cycle
  - Examine options and trade-offs, and revise priorities as necessary

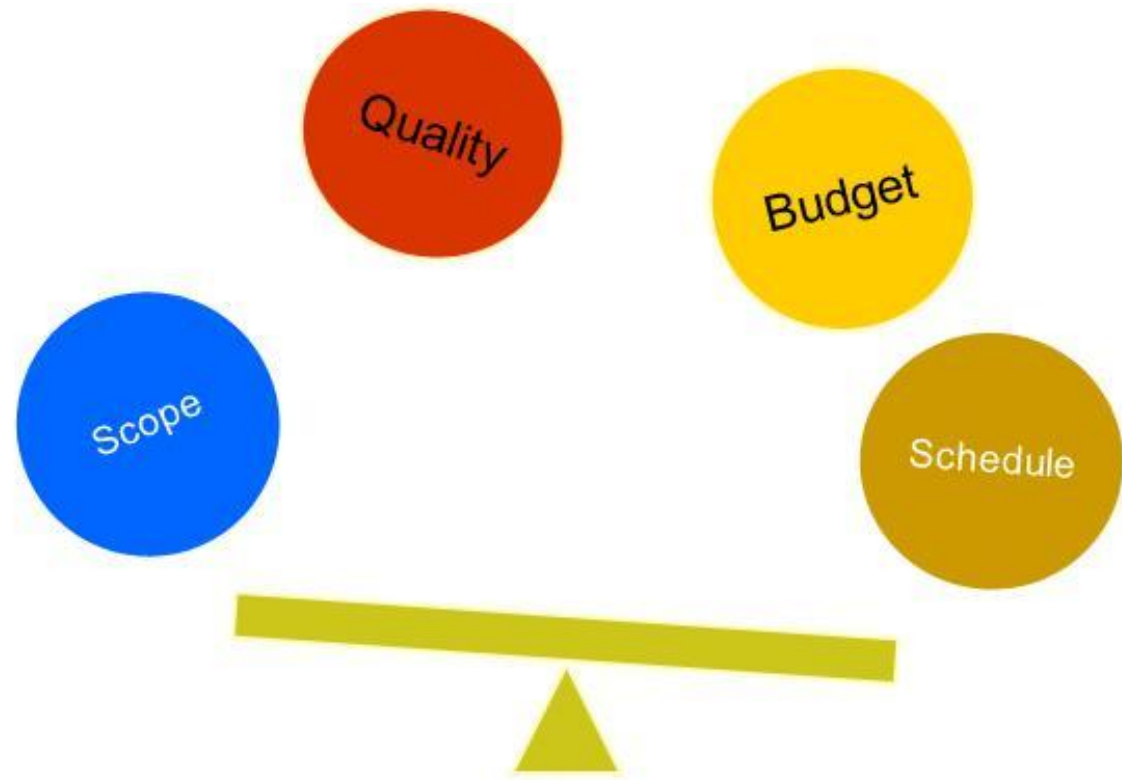


# Project Priorities - Thresholds

1. Scope – The minimal scope that must be delivered
2. Budget/Cost – The maximum amount of money the customer is willing to spend
3. Schedule – The latest the project must be finished and implemented
4. Quality – The level of quality below which the product will be unacceptable

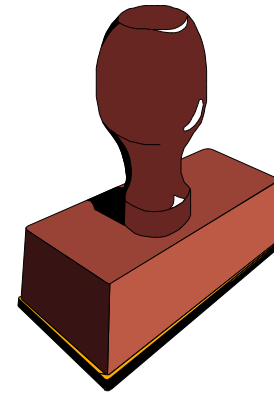
# Project Priorities

If Priorities change, be sure to maintain the equilibrium among the four project attributes.



- ◆ Complete the Project Priorities Template for your project.
- ◆ Timing: 20 minutes

- ◆ Organizational
- ◆ Environmental
- ◆ External
- ◆ Project



**VERIFY  
ASSUMPTIONS!**

- ◆ Organizational
- ◆ Environmental
- ◆ External
- ◆ Project



# Procurement Assumptions

- ◆ What work will be done by outside groups?
- ◆ How will contractors be hired?
- ◆ How will materials be purchased?
- ◆ How will equipment be purchased?



- ◆ Risks that are anticipated for this project
- ◆ Actions that are contemplated to manage the risks



# Runaway Triggers

- ◆ What are the indicators that will tell us that the project is out of control?
  - ◆ % over budget
  - ◆ % over schedule
  - ◆ % increase in scope
  - ◆ other



- ◆ Shutdown Conditions
  - What conditions could develop that would tell us that our best course of action is to shut the project down?



- ◆ Complete the Assumptions and Risks section of the Project Charter
- ◆ Timing: 20 minutes



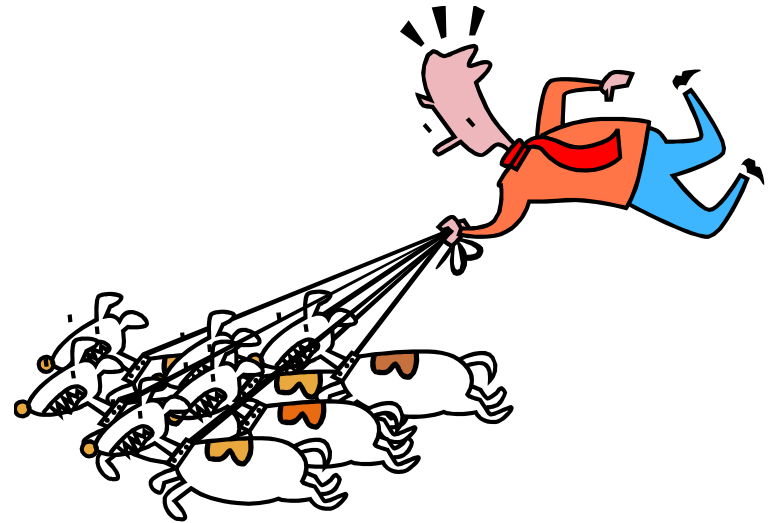
- ♦ A stakeholder:
  - Is actively involved in the project
  - Has interests that may be affected by the project's outcome
  - Might exert influence over the objectives or outcome



- ◆ Project managers must proactively:
  - Identify the stakeholders
  - Determine requirements and expectations
  - Determine communication requirements
  - Manage the stakeholders' influences relative to requirements



- ◆ Identify all stakeholders
- ◆ Vested Interest
- ◆ Assess their level of support
- ◆ Readiness
- ◆ Tolerance for Change
- ◆ Training Needs
- ◆ Other needs



# Org/Functional Stakeholder Template

Stakeholder	Interest	Support	Readiness	Tolerance For Change	Training Needs	Other Needs
Mike Jones	needs system to support hiring	In Favor	Not Ready	High	learning system orientation	none
Functional Managers	changes existing process	In Favor	Not Ready	Medium	learning system technical training	increased RAM

- ◆ Complete the Organizational/Functional Stakeholder Analysis for your project.
- ◆ Timing: 20 minutes

- ◆ PMBOK® Guide, Third Edition - *A point or matter in question or in dispute, or point or matter that is not settled and is under discussion or over which there are opposing views or disagreements.*
- ◆ Manage:
  - Keep a log
  - Set a resolution date
  - Communicate resolution to stakeholders

# Issue Log Template

- ◆ Issue #
- ◆ Date Opened
- ◆ Issue
- ◆ Impact
- ◆ Raised by
- ◆ Best Resolved by
- ◆ Action to Date
- ◆ Owner
- ◆ Next Steps
- ◆ Original Due Date
- ◆ Date Resolved

- ◆ Authorizes
- ◆ Initiated by the sponsor or the requesting organization
- ◆ Completed by the project management team once assigned
- ◆ Project Charter



# Planning

# Where Do We Start?

- ◆ Project Charter
- ◆ Be sure to consider:
  - Existing policies, processes, and procedures
  - Culture, political conditions, and infrastructure
  - Project management tools and techniques

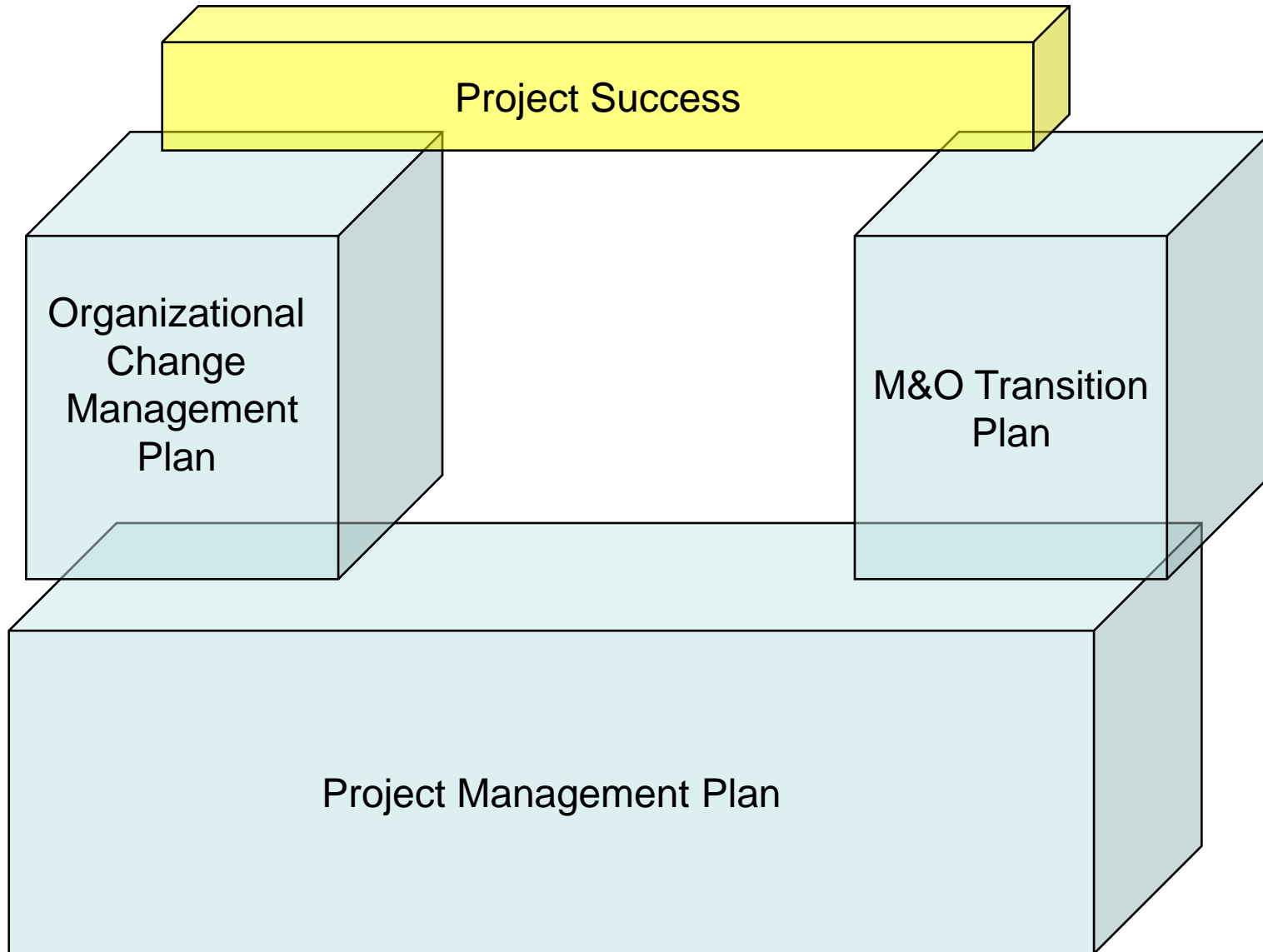


**Planning**

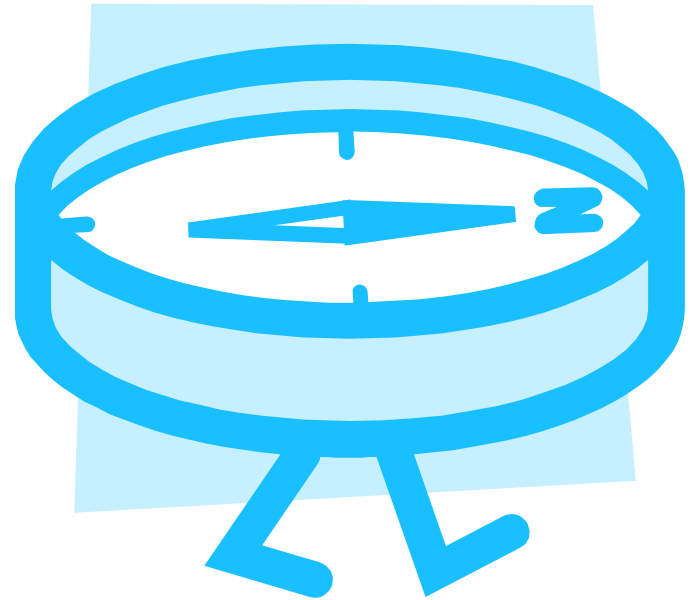
- 5. Project Management Plan:**
- 6. Organizational Change Management Plan**
- 7. Maintenance and Operations Plan**

**Project Management Plan**

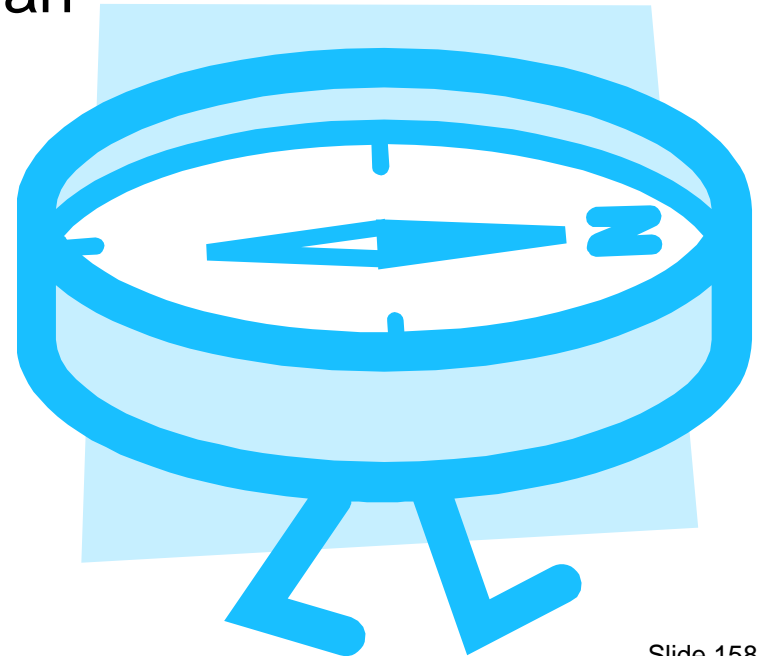
# CA-PMM Planning Outputs



- ◆ Scope Management Plan
- ◆ Configuration/Change Control Plan
- ◆ Schedule (Time) Management Plan
- ◆ Human Resources Management Plan
- ◆ Communication Management Plan
- ◆ Risk Management Plan
- ◆ Cost Management Plan
- ◆ Quality Management Plan
- ◆ Procurement Management Plan
- ◆ Contract Management Plan



- ◆ **Scope Management Plan**
- ◆ Configuration/Change Control Plan
- ◆ Schedule (Time) Management Plan
- ◆ Human Resources Management Plan
- ◆ Communication Management Plan
- ◆ Risk Management Plan
- ◆ Cost Management Plan
- ◆ Quality Management Plan
- ◆ Procurement Management Plan
- ◆ Contract Management Plan



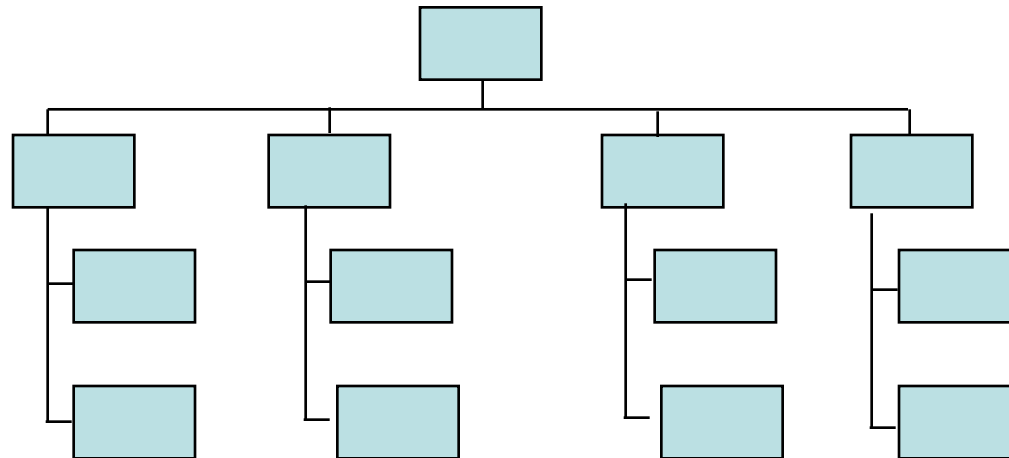
- ◆ Project Scope Management Plan includes:
  - Process used to develop a detailed scope statement
  - Process used to develop a WBS
  - Project Scope Statement (updated)
  - Process used to evaluate scope changes
  - Scope Change Request



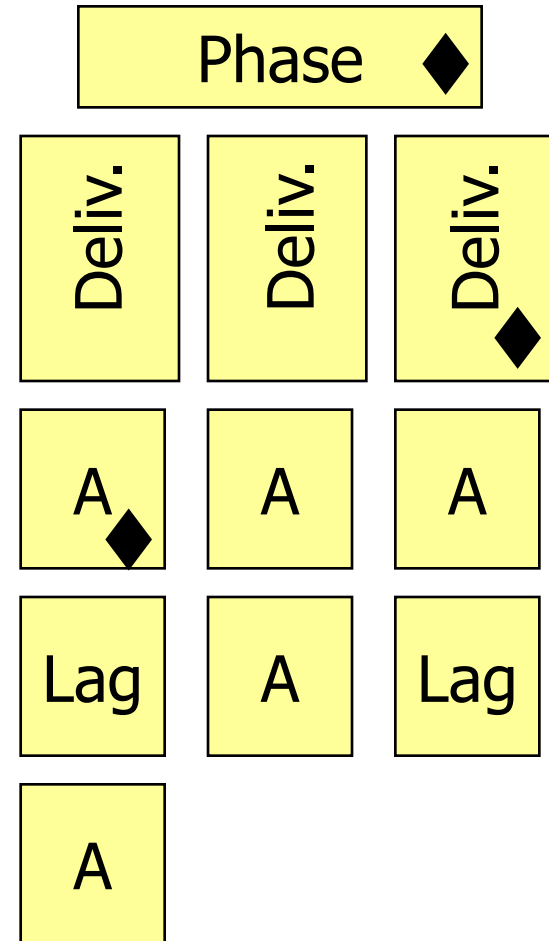
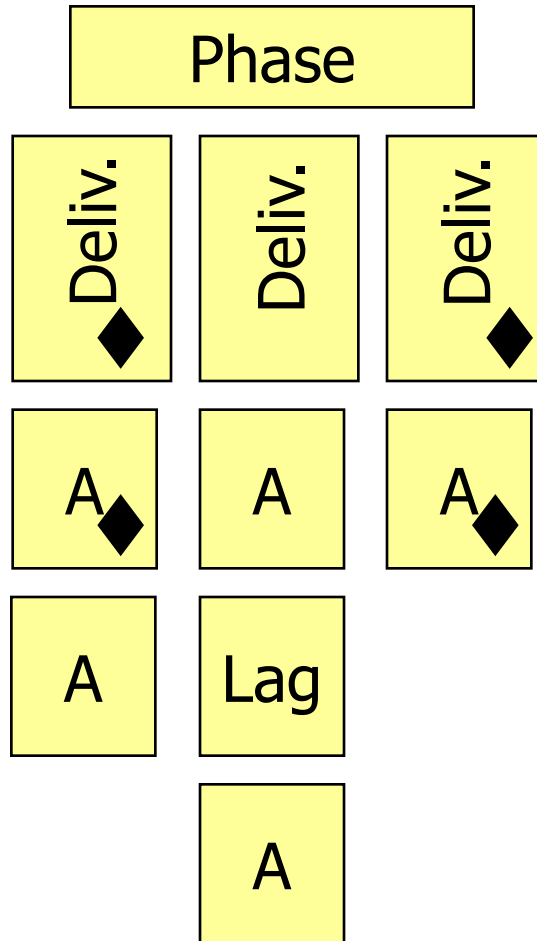
- ◆ Builds on the preliminary scope statement that is documented during project Initiating
- ◆ Establishes the scope baseline



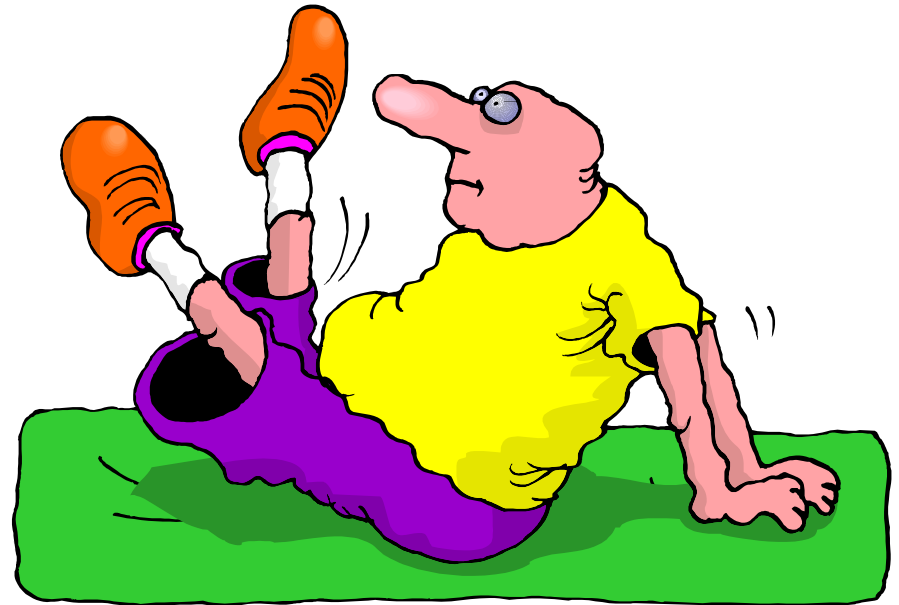
- ◆ Progressively break the project down into small enough components (activities) so that each can be assigned to specific resources and can be completed in a reasonable amount of time.



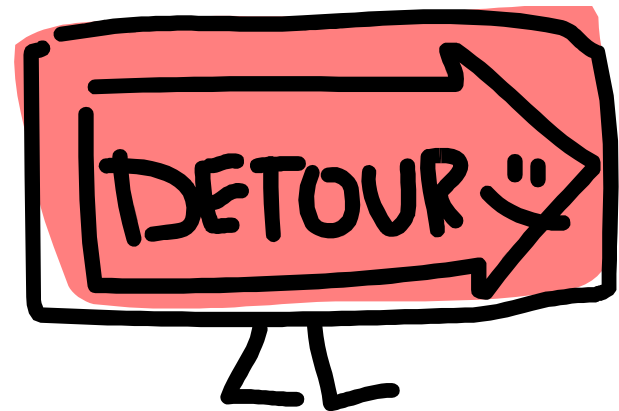
# Three-Level WBS



- ◆ Prepare a WBS for your project
  - Set Up – 5 mins
  - Phases – 5 mins
  - Deliverables – 20 mins
  - Activities and Lags – 25 mins
  - Milestones – 5 mins
  
- ◆ Total time – 60 mins



- ◆ Well-defined process for managing project scope is essential
- ◆ Baseline scope statement is foundation
- ◆ Well-defined impact/benefit criteria used in decision-making



- ◆ Cost reduction
- ◆ Improvement of quality
- ◆ Ease of use



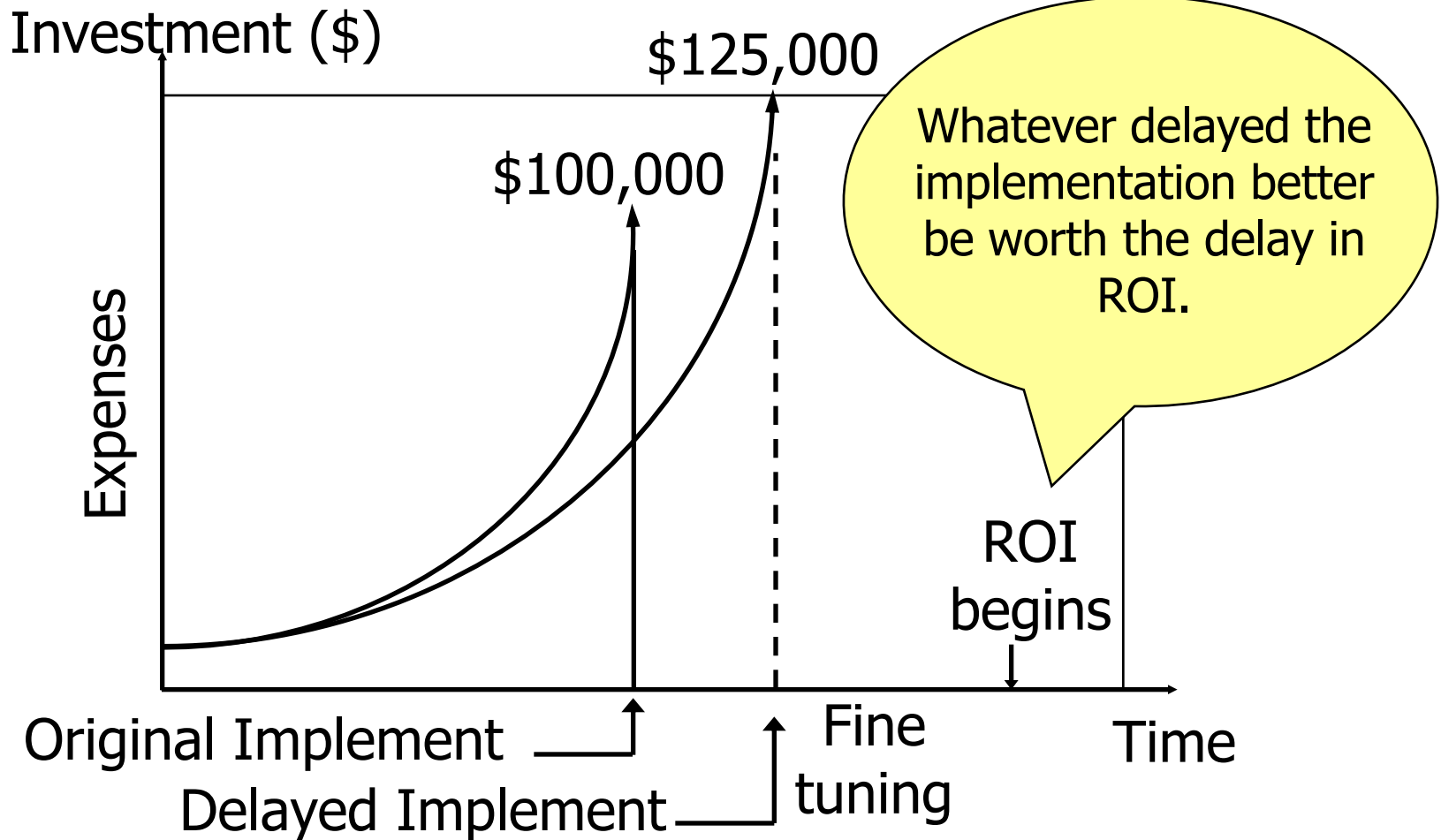
- ◆ Schedule delays
- ◆ Increased costs (effort-hours, dollars)
- ◆ Product quality compromised
- ◆ Resource availability
- ◆ Risk of new errors



- ◆ Change benefit  $\geq$  change impact
- ◆ Is there a point where the benefit of a change is not worth its cost and/or risk?
- ◆ Where the project is in its lifecycle



# Investment vs. ROI

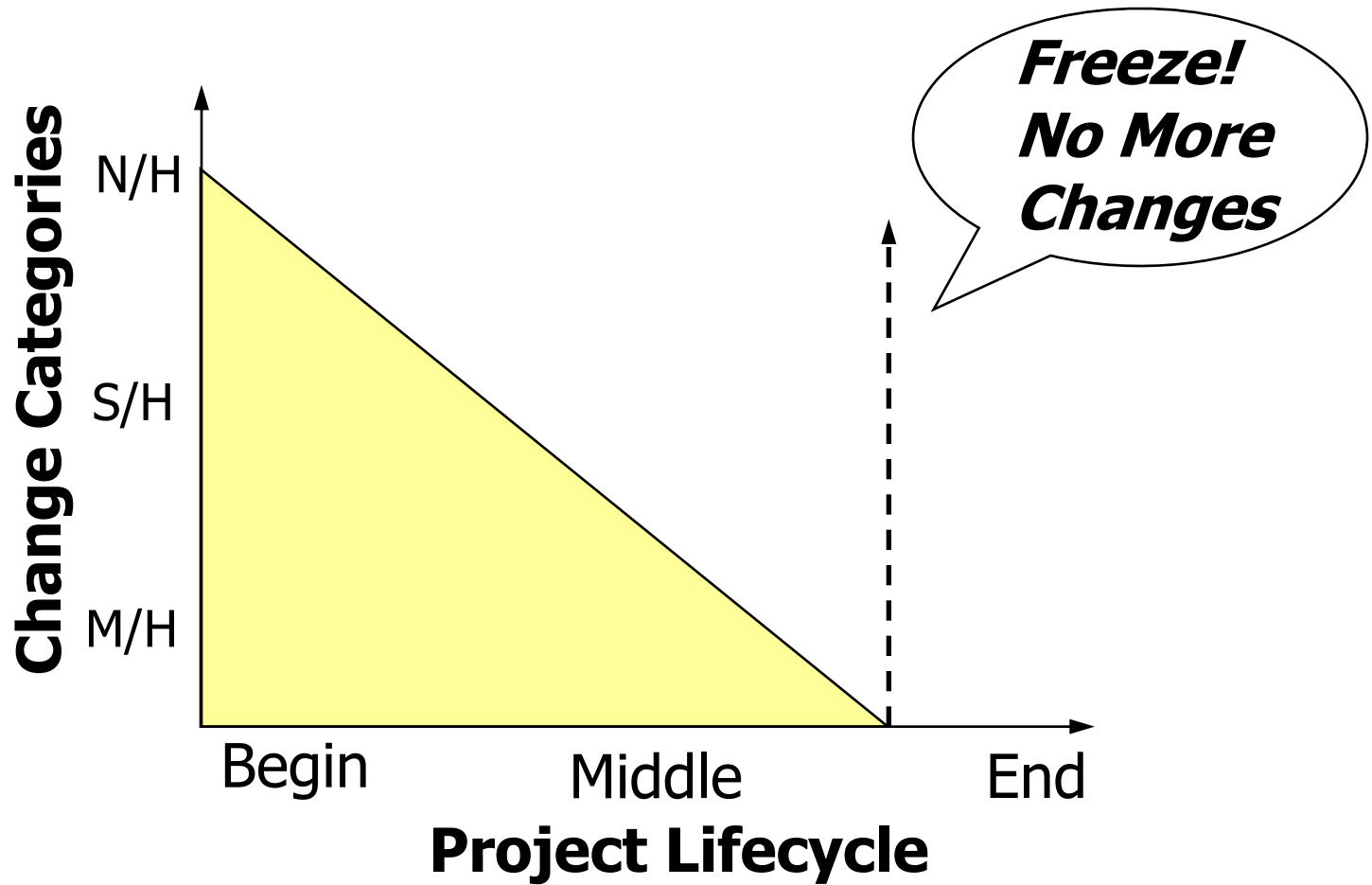


# Change Categories

- ◆ Must have (M/H): features necessary for functional viability of the project
- ◆ Should have (S/H): features that help reduce work/effort or improve quality
- ◆ Nice to have (N/H): features that enhance the ease of use



# Freezes



- ◆ Scope change initiation
- ◆ Review process
- ◆ Decision criteria
- ◆ Approval process, authorities
- ◆ Action following approval/disapproval



# Scope Change Request Template

## Change Request

Change Request #

Description:

Category:

Benefits:

Impact:

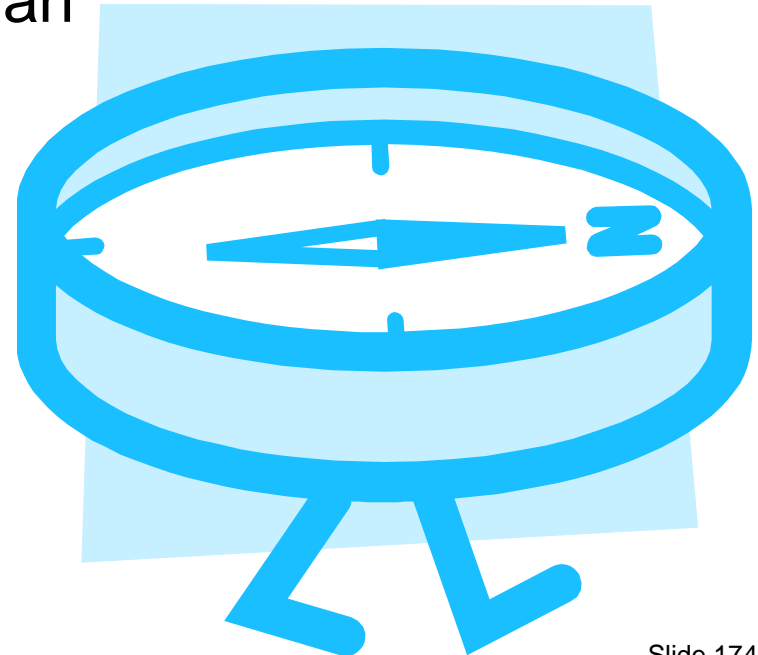
Risk:

Approval:



- ◆ A plan for how we are going to manage the scope of the project
- ◆ Produces a detailed scope statement
- ◆ Creates a WBS

- ◆ Scope Management Plan
- ◆ **Configuration/Change Control Plan**
- ◆ Schedule (Time) Management Plan
- ◆ Human Resources Management Plan
- ◆ Communication Management Plan
- ◆ Risk Management Plan
- ◆ Cost Management Plan
- ◆ Quality Management Plan
- ◆ Procurement Management Plan
- ◆ Contract Management Plan

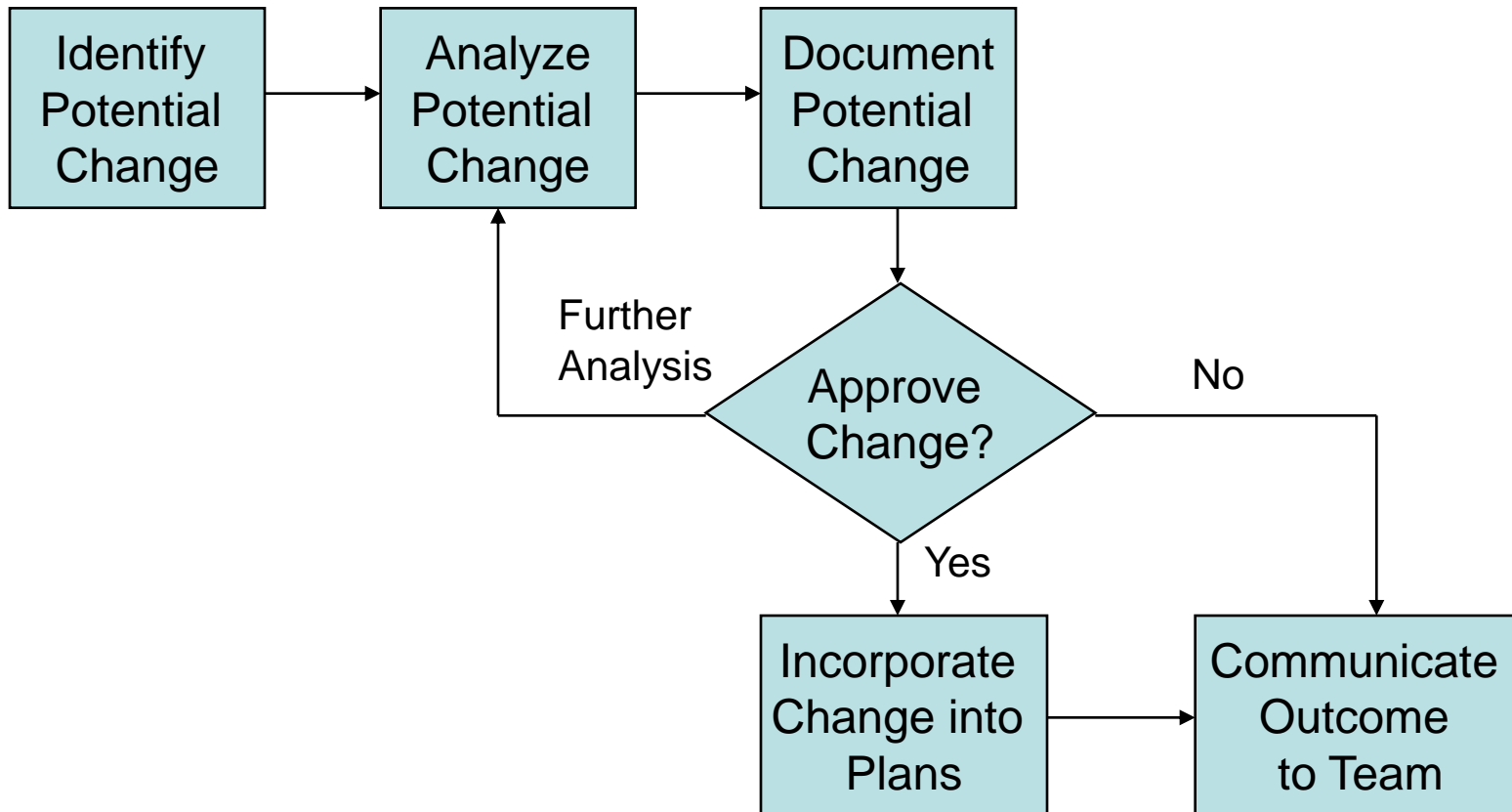


## Purpose:

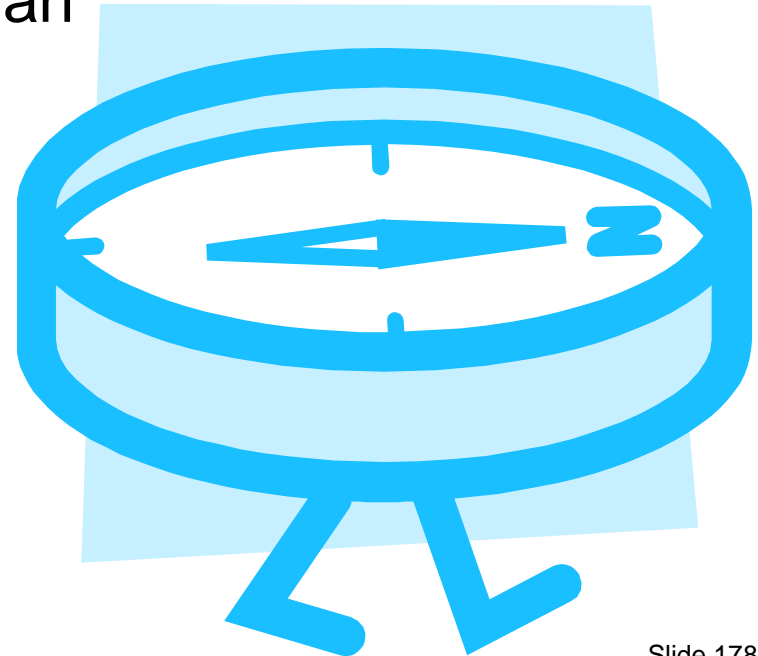
- ◆ To manage change to the project's baselines for scope, schedule, cost, and quality
- ◆ To manage change across the various planning documents to ensure that direct and indirect impacts are addressed
- ◆ To manage the storage, handling, and disposition of project media (both automated and paper)

- ◆ Introduction
- ◆ Participant roles and responsibilities
- ◆ Configuration/change control management process

## ◆ Baseline Change Process Flowchart

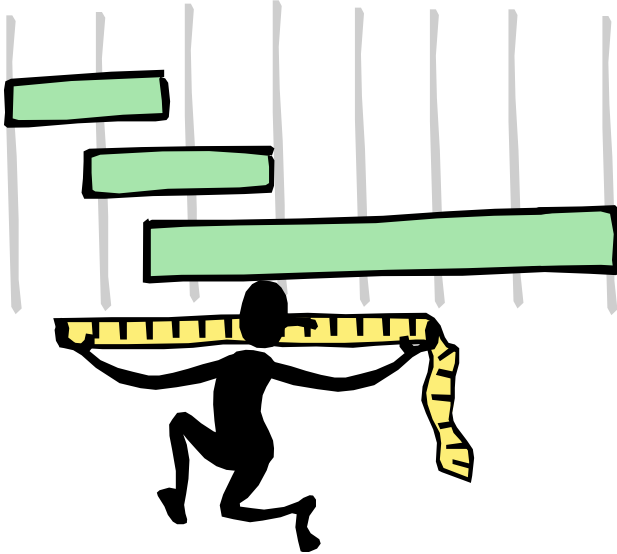
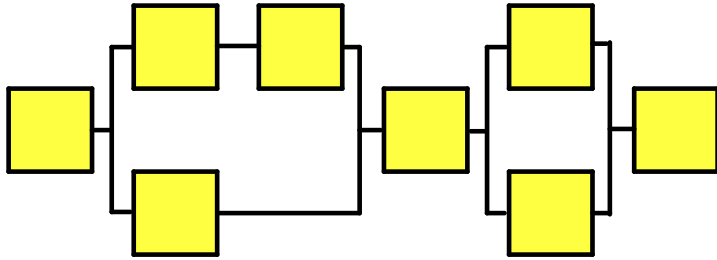


- ◆ Scope Management Plan
- ◆ Configuration/Change Control Plan
- ◆ **Schedule (Time) Management Plan**
- ◆ Human Resources Management Plan
- ◆ Communication Management Plan
- ◆ Risk Management Plan
- ◆ Cost Management Plan
- ◆ Quality Management Plan
- ◆ Procurement Management Plan
- ◆ Contract Management Plan

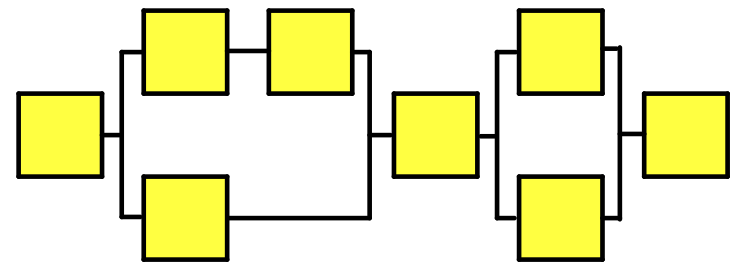


# Schedule (Time) Management

- ◆ Defines how we will manage the schedule:

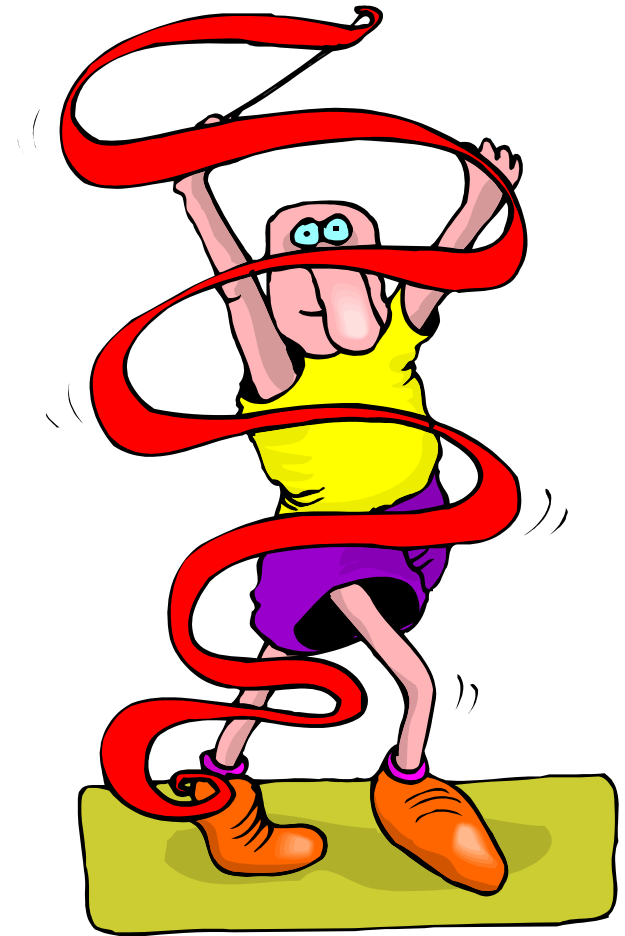


- ◆ Depicts the logical sequence of tasks
- ◆ Depicts parallel tasks
- ◆ Graphically illustrates task dependencies



# Network Diagram Exercise

- ◆ Convert your WBS in to a Project Schedule Network Diagram
- ◆ Timing: 20 minutes

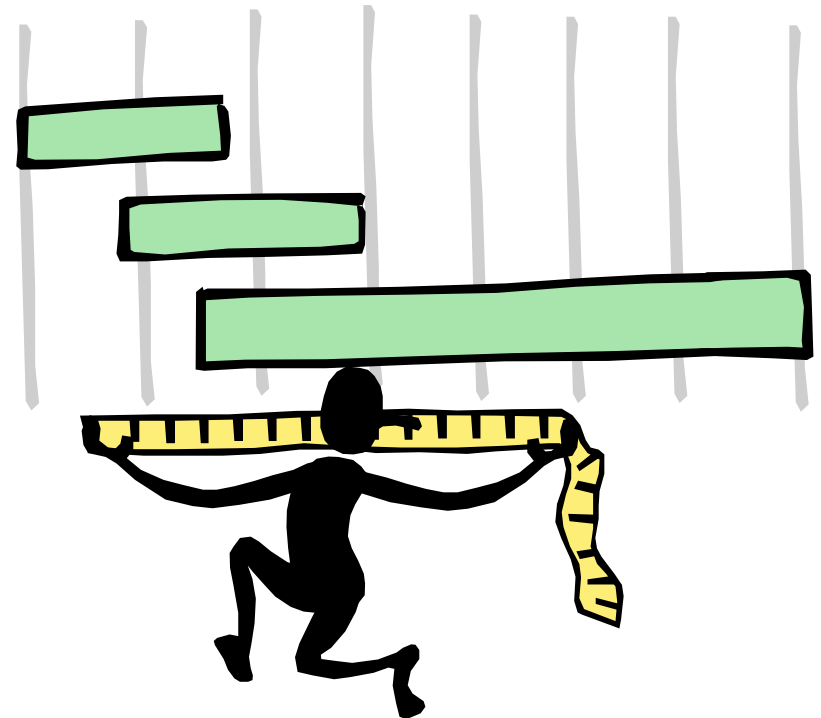


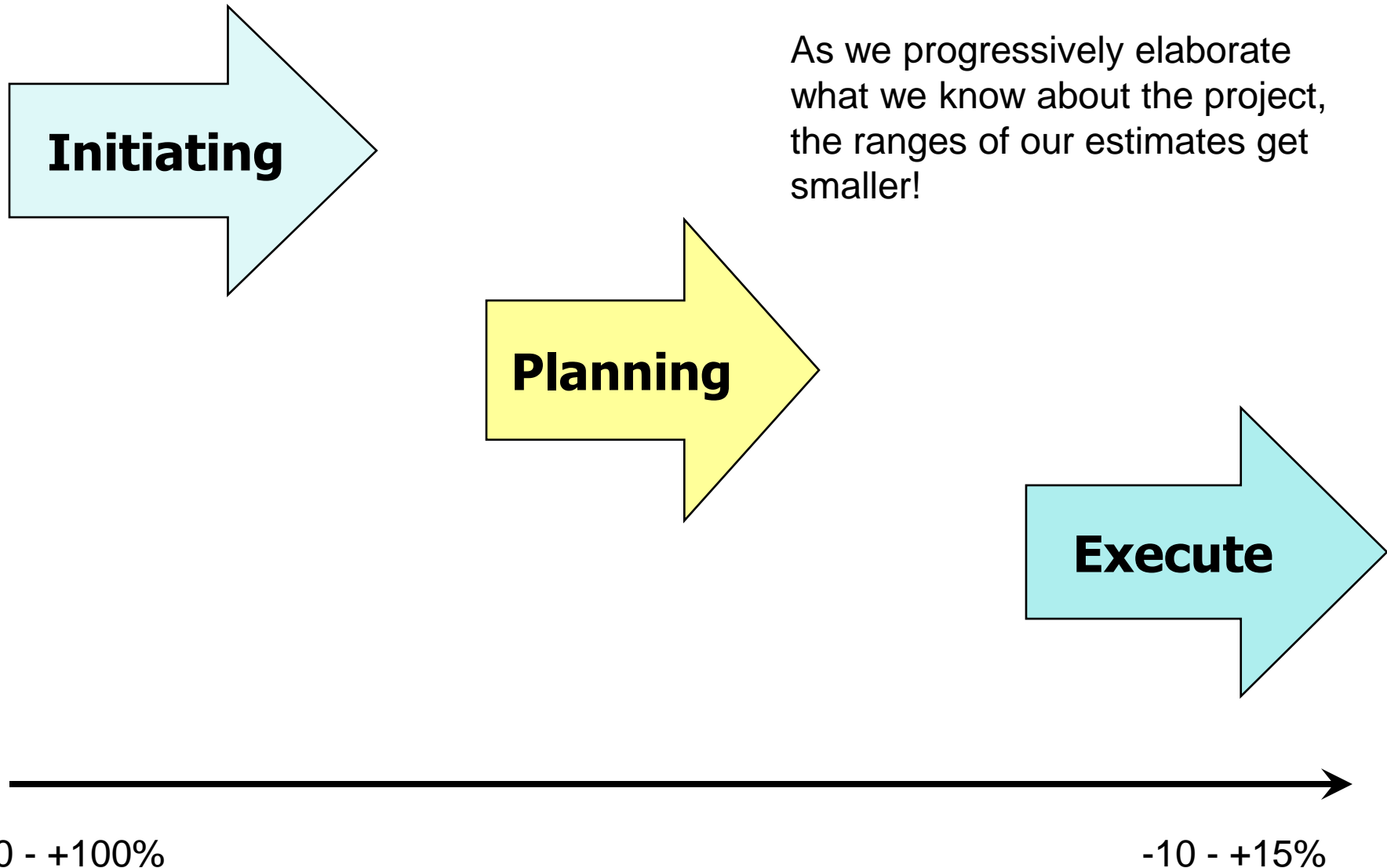
- ◆ Estimating the types and quantities of the resources needed to complete each activity:
  - ◆ Human resources
  - ◆ Material
  - ◆ Equipment
  - ◆ Consultants



# Activity Duration Estimating

- ♦ How would you like your boss to describe your estimates?





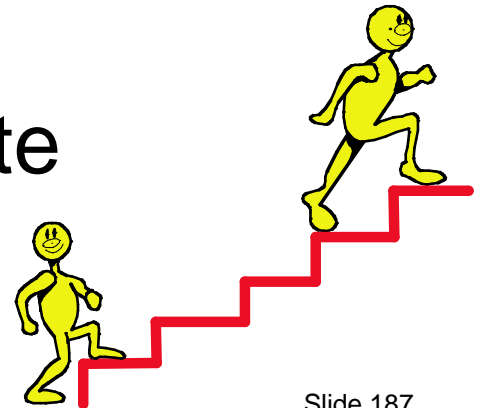
- ◆ Effort: the amount of work expressed in hours
  - Effort-driven activities will require a longer or shorter duration as the effort increases or decreases.
  
- ◆ Duration: the number of work days, weeks, or months to complete the effort
  - Duration-driven tasks do not expand or contract regardless of the number of resources participating.

# How Do You Get Estimates?

- ◆ Ask the person to whom the task is assigned
- ◆ Project manager estimates
- ◆ Gather a representative group
- ◆ Historical data



- ◆ Step 1 – WBS Review
- ◆ Step 2 – Network Diagram Review
- ◆ Step 3 – Baseline Effort Estimate
- ◆ Step 4 – Resource Profile
- ◆ Step 5 – Effort Estimate
- ◆ Step 6 – Activity Duration Estimate



# Activity Duration Estimate Worksheet



# Activity Duration Estimate Worksheet

## Formula for Duration Estimate

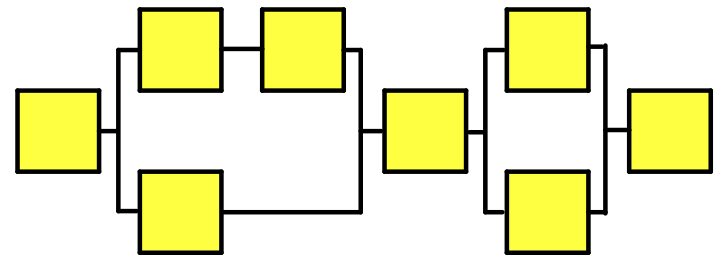
	BE	X					EVF =	BE X EVF = EE	EE/ Hrs Work Day	= DE days
Activity	Hrs	Resources	SF *	WIF *	MPF *	PPIF =				
Write Report	4	Sue	1.5	1.43	1.18	1.15	2.9	12	8	1.5

# Step 1 – WBS Review

- ◆ Review the most recent WBS and revise as necessary
- ◆ Be sure to include a detailed activity list for each deliverable



- ◆ Depicts the relationships among activities and milestones
- ◆ Shows the order in which various activities can be undertaken



## Step 3: Baseline Effort

- ◆ Proficient
- ◆ No interruptions
- ◆ Full-time assignment to the project
- ◆ Optimal work environment

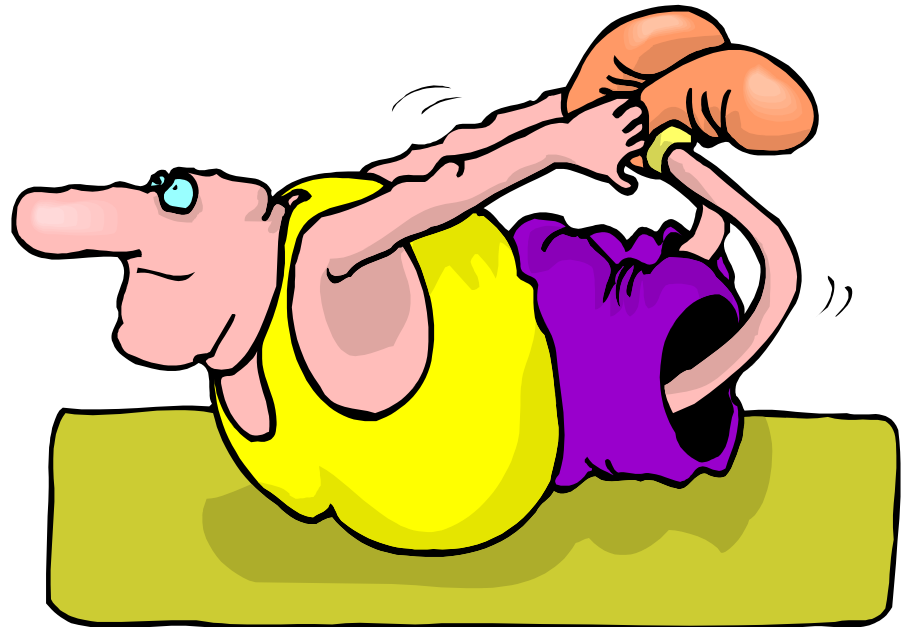


## Step 3: Baseline Effort Example

<b>No.</b>	<b>Activities</b>	<b>Baseline Estimate Hours</b>
<b><i>1.</i></b>	<b><i>Build user interface</i></b>	<b><i>16</i></b>
<b><i>2.</i></b>	<b><i>Test user interface</i></b>	<b><i>4</i></b>
<b><i>3.</i></b>	<b><i>Fix bugs in user interface</i></b>	<b><i>8</i></b>

## Step 3: Baseline Effort Exercise

- ◆ Enter the activities from your network diagram designated by your instructor onto the Activity Duration Estimate Worksheet
- ◆ Estimate the baseline effort (BE) for each activity listed
- ◆ Timing: 15 minutes



- ◆ Resource Profiling
  - Skill Level
  - Work Interruption
  - Multi Project Assignment
  - Project Productivity Environment



# Step 4: Skill Level

- ◆ Proficient
  - Fully experienced, subject matter expert
- ◆ Competent
  - Competent in skills, solid knowledge of subject, good experience
- ◆ Learner
  - Basic competencies, some subject knowledge, little experience
- ◆ Novice
  - Some subject knowledge, extensive training needed, good work habits



# Step 4: Skill Factor Categories

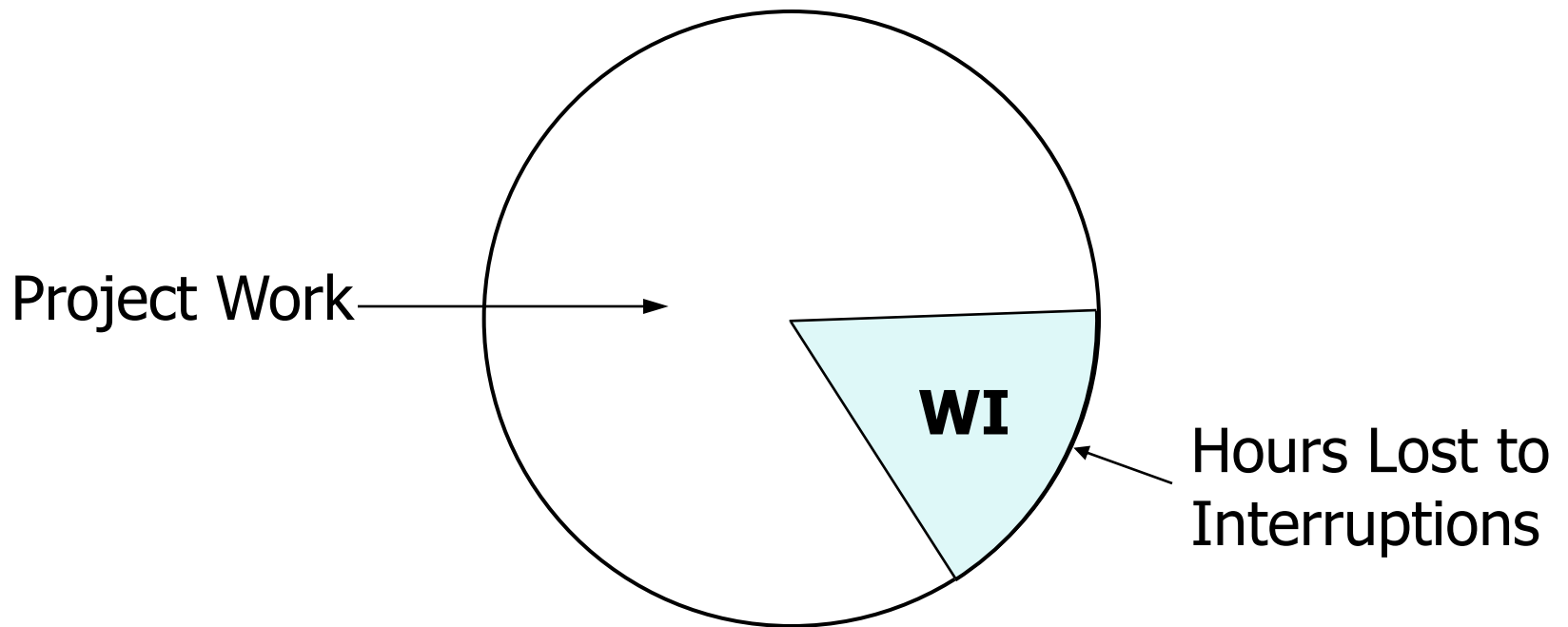
<b>Skill Level</b>	<b>Description</b>	<b>SF</b>
<b>Proficient: Level 1</b>	<b>Fully experienced, subject matter expert</b>	<b>1</b>
<b>Proficient: Level 2</b>	<b>Fully experienced, extensive subject matter knowledge</b>	<b>1.1</b>
<b>Proficient: Level 3</b>	<b>Extensive subject matter knowledge, some learning curve required</b>	<b>1.2</b>
<b>Competent: Level 1</b>	<b>Competent in all task-related skills, solid knowledge of subject, good experience</b>	<b>1.4</b>
<b>Competent: Level 2</b>	<b>Competent at similar tasks, solid subject knowledge, some learning curve required</b>	<b>1.5</b>
<b>Competent: Level 3</b>	<b>Competent at basic skills for the task, mid-range subject knowledge, some experience</b>	<b>1.75</b>
<b>Learner: Level 1</b>	<b>Possesses basic competencies for the task, some subject knowledge, little experience</b>	<b>2</b>

## Step 4: Work Interruption Factor (WIF)

- ◆ Time lost due to interruptions
- ◆ Interview team member
- ◆ Interview team member manager
- ◆ Historical data



# Step 4: Work Interruption

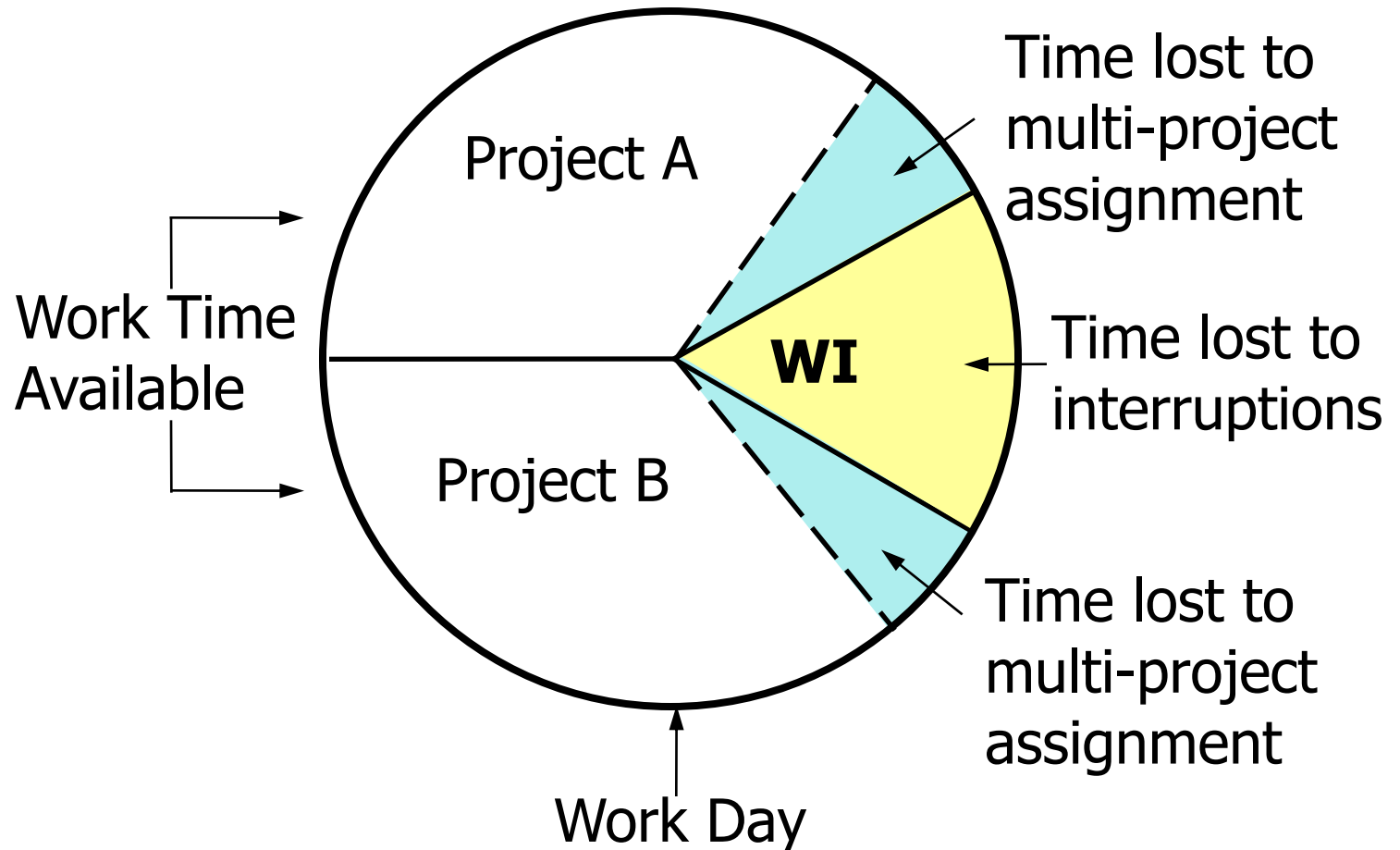


$$WIF = \frac{100}{100 - \text{Percent of Time Lost Due to Interruptions}}$$

# Step 4: WIF

Percentage Lost Due to Interruption	WIF
<b>5</b>	<b>1.05</b>
<b>10</b>	<b>1.11</b>
<b>15</b>	<b>1.18</b>
<b>20</b>	<b>1.25</b>
<b>25</b>	<b>1.33</b>
<b>35</b>	<b>1.54</b>
<b>45</b>	<b>1.82</b>
<b>50</b>	<b>2</b>
<b>75</b>	<b>4</b>

# Step 4: Multi Project Assignment

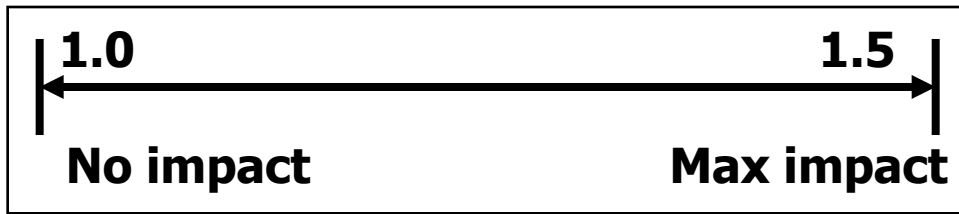


# Step 4: Calculating MPF

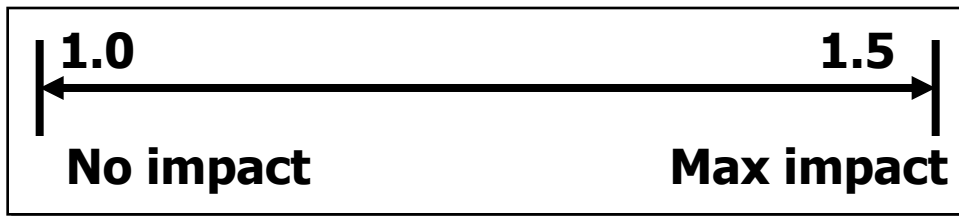
<b>% Lost Due to Multi-Project Assignment</b>	<b>MPF</b>
<b>10%</b>	<b>1.11</b>
<b>15%</b>	<b>1.18</b>
<b>20%</b>	<b>1.25</b>

$$\text{MPF} = \frac{100}{100 - \% \text{ of Time Lost Due to Switching Between Projects}}$$

- ◆ Team size
- ◆ Team location
- ◆ Tool stability
- ◆ Vendor support

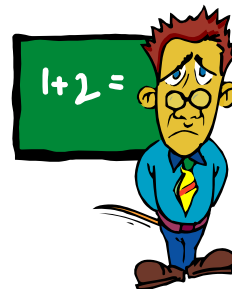


- ◆ Project duration
- ◆ Number of nemeses
- ◆ Turnover rate
- ◆ Team synergy
- ◆ Team-client synergy



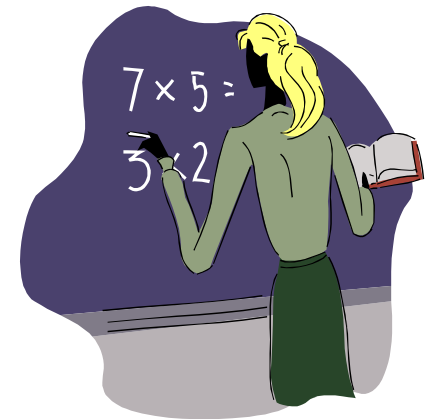
# Step 4: PPIF

Project Productivity Influencing Factors	Range: 1 to 1.5
<b>Team Size</b>	<b>1.2</b>
<b>Team Location</b>	<b>1.5</b>
<b>Tool Stability</b>	<b>N/A</b>
<b>Vendor Support</b>	<b>1.1</b>
<b>Project Duration</b>	<b>N/A</b>
<b>Number of Nemeses</b>	<b>1.1</b>
<b>Turnover Rate</b>	<b>N/A</b>
<b>Team Synergy</b>	<b>1.1</b>
<b>Team-Client Synergy</b>	<b>1.2</b>
<b>Total</b>	<b>7.2</b>
<b>Number of Factors</b>	<b>6</b>
<b>PPIF =</b>	<b>1.2</b>



## Step 4: Effort Variance Factor

- ◆ Skill Factor (SF)
- ◆ Work Interruption Factor (WIF)
- ◆ Multi-Project Factor (MPF)
- ◆ Project Productivity Influencing Factor (PPIF)



# Step 4: EVF Formula

<b>SF</b>	<b>*</b>	<b>WIF</b>	<b>*</b>	<b>MPF</b>	<b>*</b>	<b>PPIF</b>	<b>=</b>	<b>EVF</b>
<b>1.50</b>	<b>*</b>	<b>1.33</b>	<b>*</b>	<b>1.18</b>	<b>*</b>	<b>1.20</b>	<b>=</b>	<b>2.8</b>

- ◆ Assign each activity for which you have a Baseline Effort Estimate to someone on the team
- ◆ Develop EVFs for each team member based on the activities to which they are assigned
- ◆ Timing: 20 minutes



# Step 5: Effort Estimate

Baseline	*	EVF	=	Effort Estimate
<b><i>6 hrs</i></b>	*	<b><i>2.8</i></b>	=	<b><i>17 hrs*</i></b>

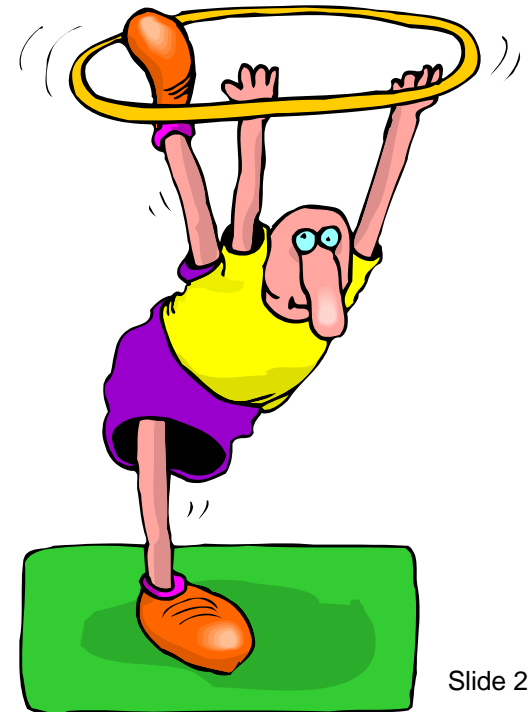
**Round up to the nearest whole number**

# Step 6: Activity Duration Estimate

<b>Activity</b>	<b>BE</b>	<b>Resource</b>	<b>*</b>	<b>EVF</b>	<b>=</b>	<b>EE</b>	<b>÷</b>	<b>Activity Hrs./ Work Day</b>	<b>=</b>	<b>DE</b>
<b>Write Report</b>	<b>4</b>	<b>Sue</b>	<b>*</b>	<b>2.9</b>	<b>=</b>	<b>12</b>	<b>÷</b>	<b>8</b>	<b>=</b>	<b>1.5</b>
<b>Enter Data</b>	<b>6</b>	<b>Bill</b>	<b>*</b>	<b>5.1</b>	<b>=</b>	<b>31</b>	<b>÷</b>	<b>4</b>	<b>=</b>	<b>8</b>

# Estimating Exercise

- ◆ Complete the Activity Duration Estimate Template for your project
- ◆ Write the duration of and the initials of the resource assigned to each activity (and lag) on the appropriate Post-It®
- ◆ Timing: 10 minutes



## PERT Estimate

$$\text{Estimated Duration} = \frac{\text{Optimistic} + (4 \times \text{Most Likely}) + \text{Pessimistic}}{6}$$

## PERT Standard Deviation (SD)

$$\text{Standard Deviation} = \frac{\text{Pessimistic} - \text{Optimistic}}{6}$$

## ♦ “Three-point” estimate values

- Optimistic = 8 days
- Most Likely = 12 days
- Pessimistic = 18 days

$$\text{Estimated Duration} = \frac{\text{Optimistic} + (4 \times \text{Most Likely}) + \text{Pessimistic}}{6}$$

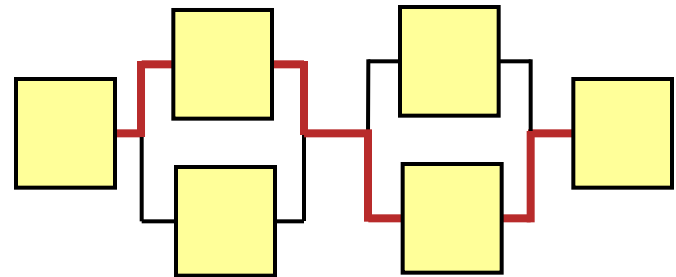
$$\text{Estimated Duration} = \frac{8 + (4 \times 12) + 18}{6} = 12.3$$

$$\text{Standard Deviation} = \frac{\text{Pessimistic} - \text{Optimistic}}{6}$$

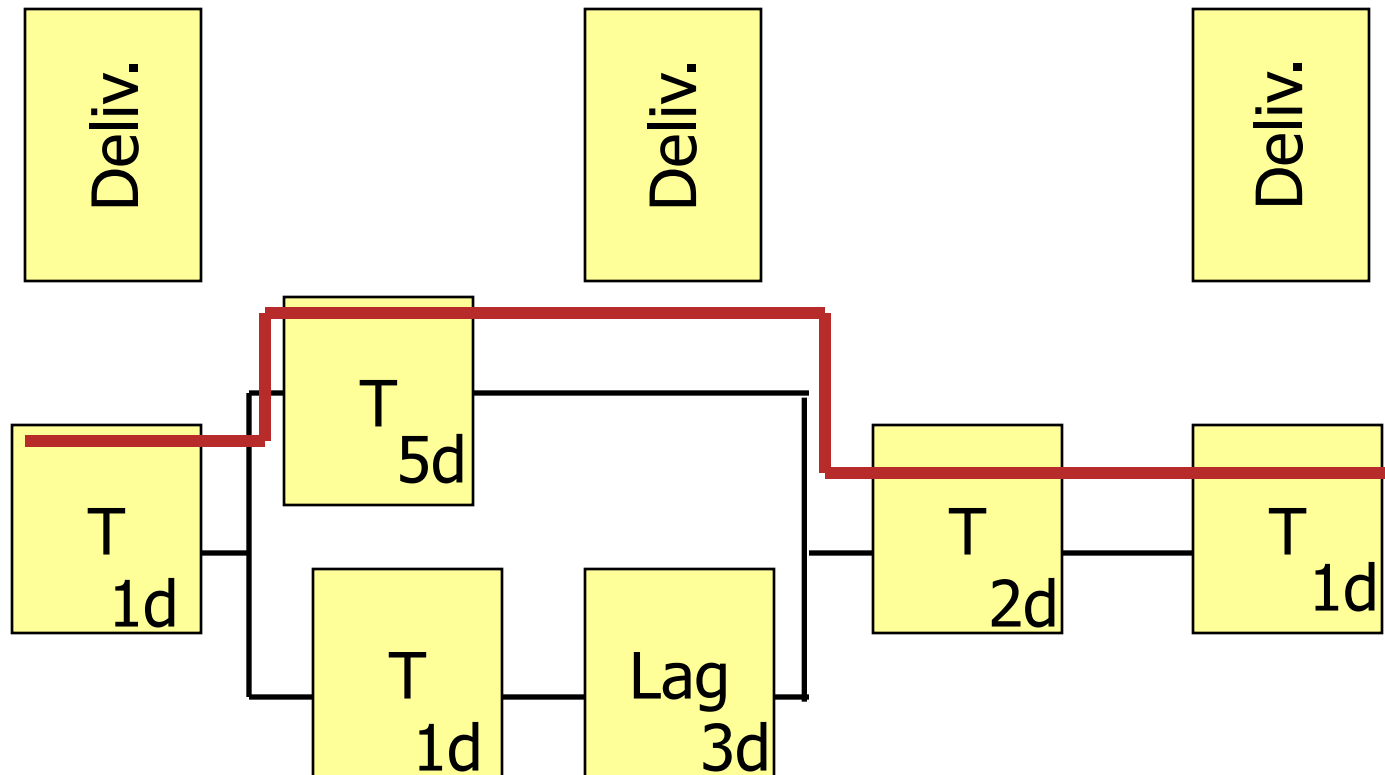
$$\text{Standard Deviation} = \frac{18 - 8}{6} = 1.7 \text{ days}$$

- ◆ Complete the PERT calculations on the handout.
- ◆ Timing: 10 minutes

- ◆ The Critical Path is:
  - The longest path(s)
  - The earliest the project can be completed
  - The project duration

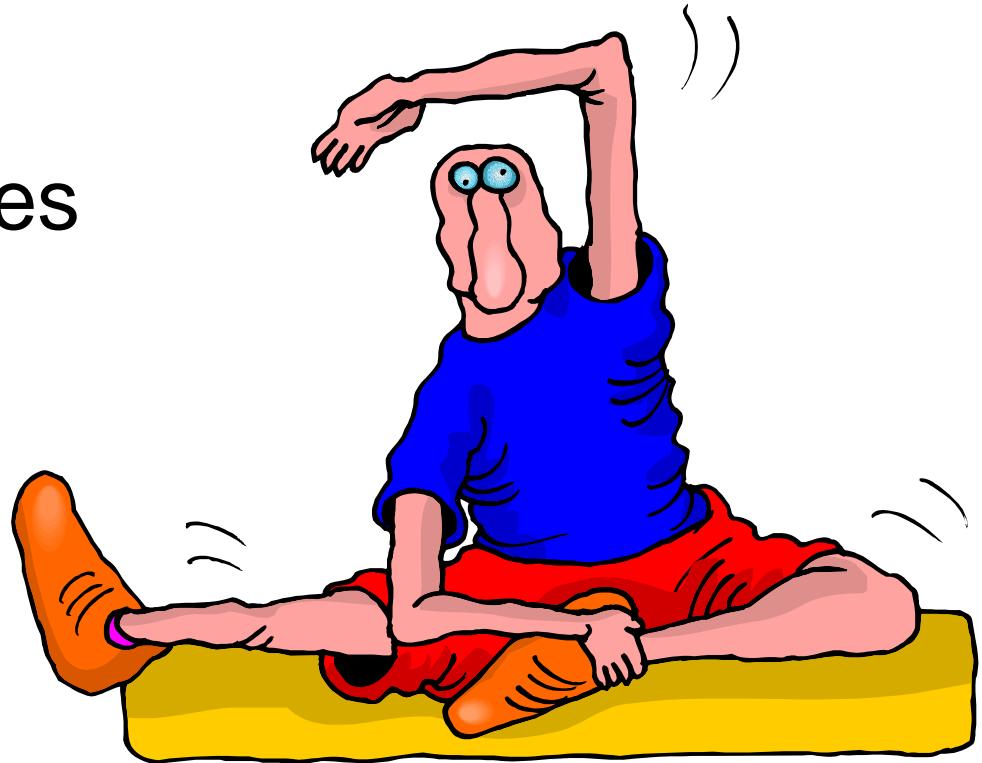


# Critical Path



# Critical Path Exercise

- ◆ Using your network diagram, identify the critical path through the network
- ◆ Write the duration in large numbers on the workstation
- ◆ Timing: 15 minutes



- ◆ Project Schedule Network Diagram
  - Apply resource constraints
  - Apply resource calendars
- ◆ Use project management software to create the start and finish dates

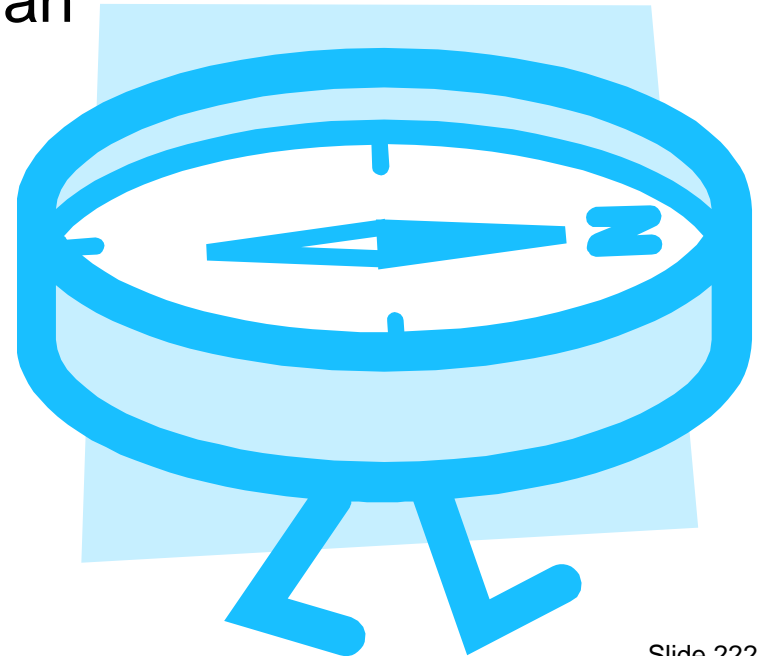


- ◆ Apply analytical techniques
  - Critical path method
  - Schedule Compression
    - ◆ Crashing
    - ◆ Fast tracking
    - ◆ “What if” scenario
    - ◆ Resource leveling

- ◆ Tool
- ◆ Schedule baseline
- ◆ Update intervals and authority
- ◆ Schedule location

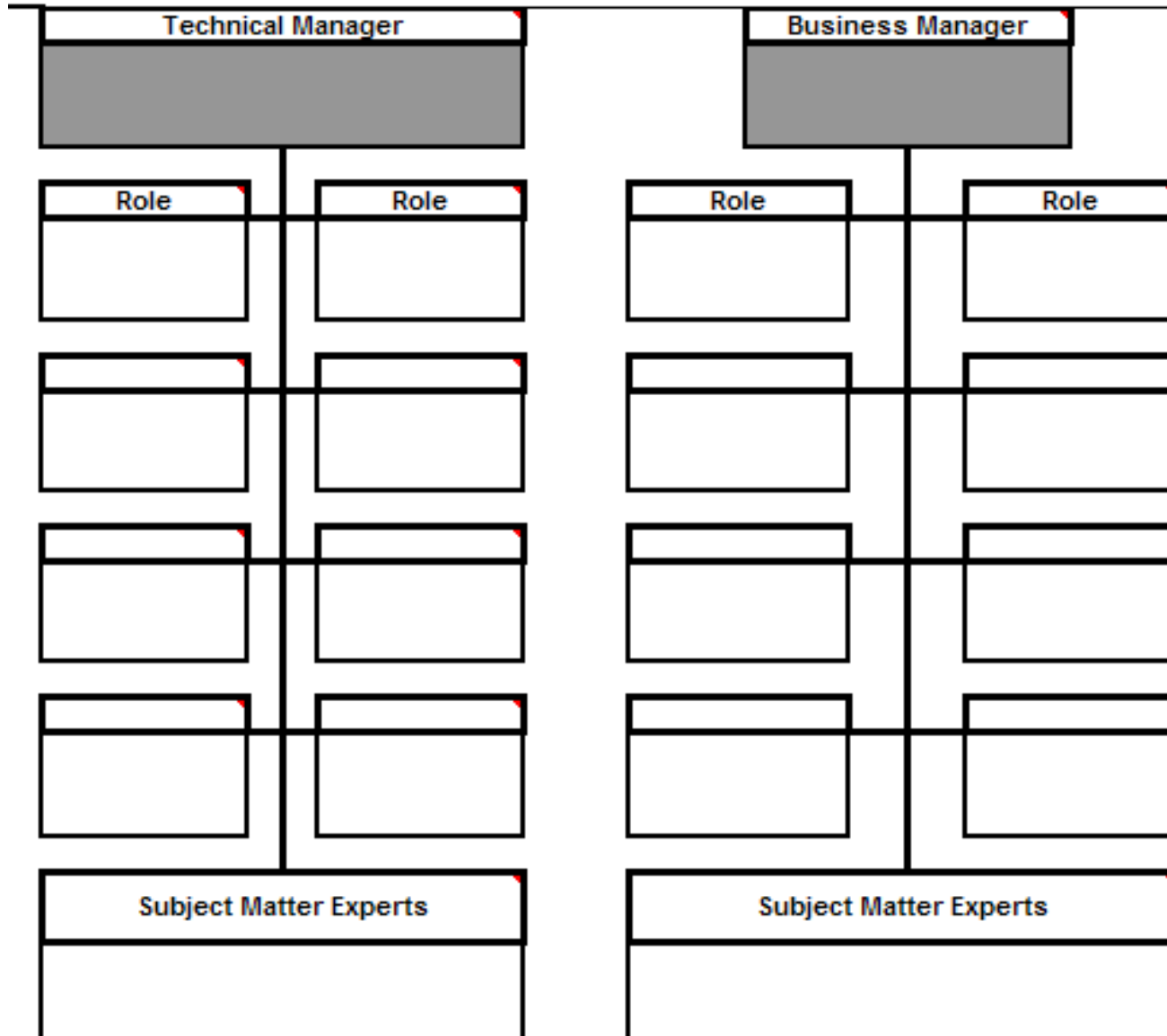
- ◆ Defines the approach, tools, and techniques that we will use to develop, manage, and control the schedule
  - Activity sequencing
  - Activity resource estimating
  - Activity duration estimating
  - Schedule development

- ◆ Scope Management Plan
- ◆ Configuration/Change Control Plan
- ◆ Schedule (Time) Management Plan
- ◆ **Human Resources Management Plan**
- ◆ Communication Management Plan
- ◆ Risk Management Plan
- ◆ Cost Management Plan
- ◆ Quality Management Plan
- ◆ Procurement Management Plan
- ◆ Contract Management Plan



- ◆ Identifying and documenting project roles, responsibilities, and reporting relationships
- ◆ Outputs:
  - Project organization charts
  - Staffing management plan
  - PASI
  - Project Management roles and responsibilities

# Project Organization Chart



- ◆ Describes how we will manage the staffing of the project:
  - Role
  - Type
  - Internal
  - Location
  - Timeframe
  - Release criteria
  - Reward/recognition

- ◆ Using the Project Organization Chart, identify the key roles needed
- ◆ Complete the Staffing Management Plan Section of the Human Resources Plan worksheet
- ◆ Timing: 15 minutes



# Determine Required Skill/Level

- ◆ Proficient
  - Fully experienced, subject matter expert
- ◆ Competent
  - Able, good experience, solid knowledge
- ◆ Learner
  - Little experience, some knowledge
- ◆ Novice
  - Extensive training required

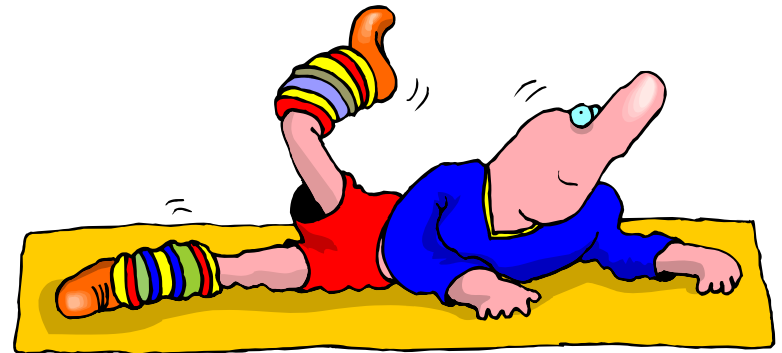


# Required Skills and Skill Level

Role: <b><i>Instructor</i></b>					Source: <b><i>Training Dept.</i></b>	
Resource Name: <b><i>Dennis</i></b>					When Needed: <b><i>Aug 1 – Nov 30</i></b>	
Required Skills	Skill Level Required				Actual Skill Level	Skill Gap Plan
	1	2	3	4		
	Proficient	Competent	Learner	Novice		
<b>Facilitation</b>	<b>X</b>				<b>2</b>	Mentor
<b>Presentation Skills</b>		<b>X</b>			<b>3</b>	Coaching sessions
<b>Knowledge of Subject</b>		<b>X</b>			<b>1</b>	N/A

# Required Skills Exercise

- ◆ Choose two of the roles you have identified
- ◆ Complete the Required Skills template for both roles
- ◆ Timing: 15 minutes



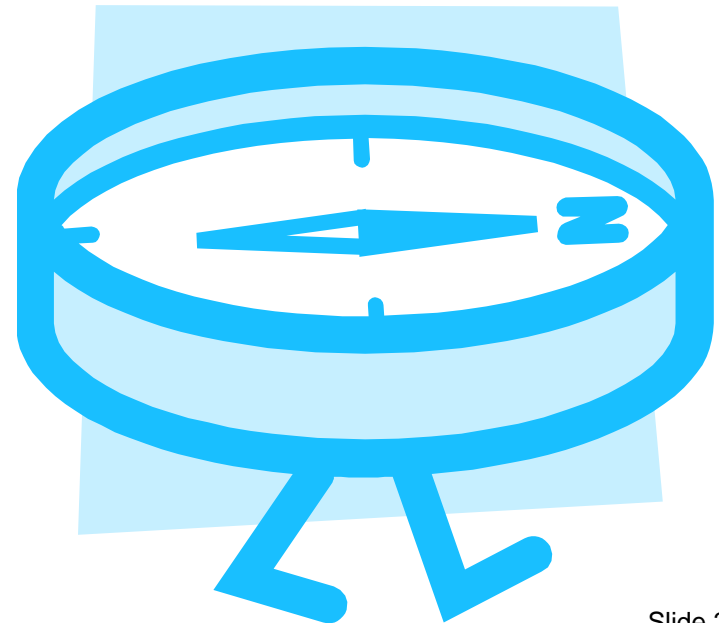
# RAM - PASI

<p>P = Primary Responsibility A = Approval Authority S = Supporting Responsibility I = Information Only</p>	Role/Person							
Activity								

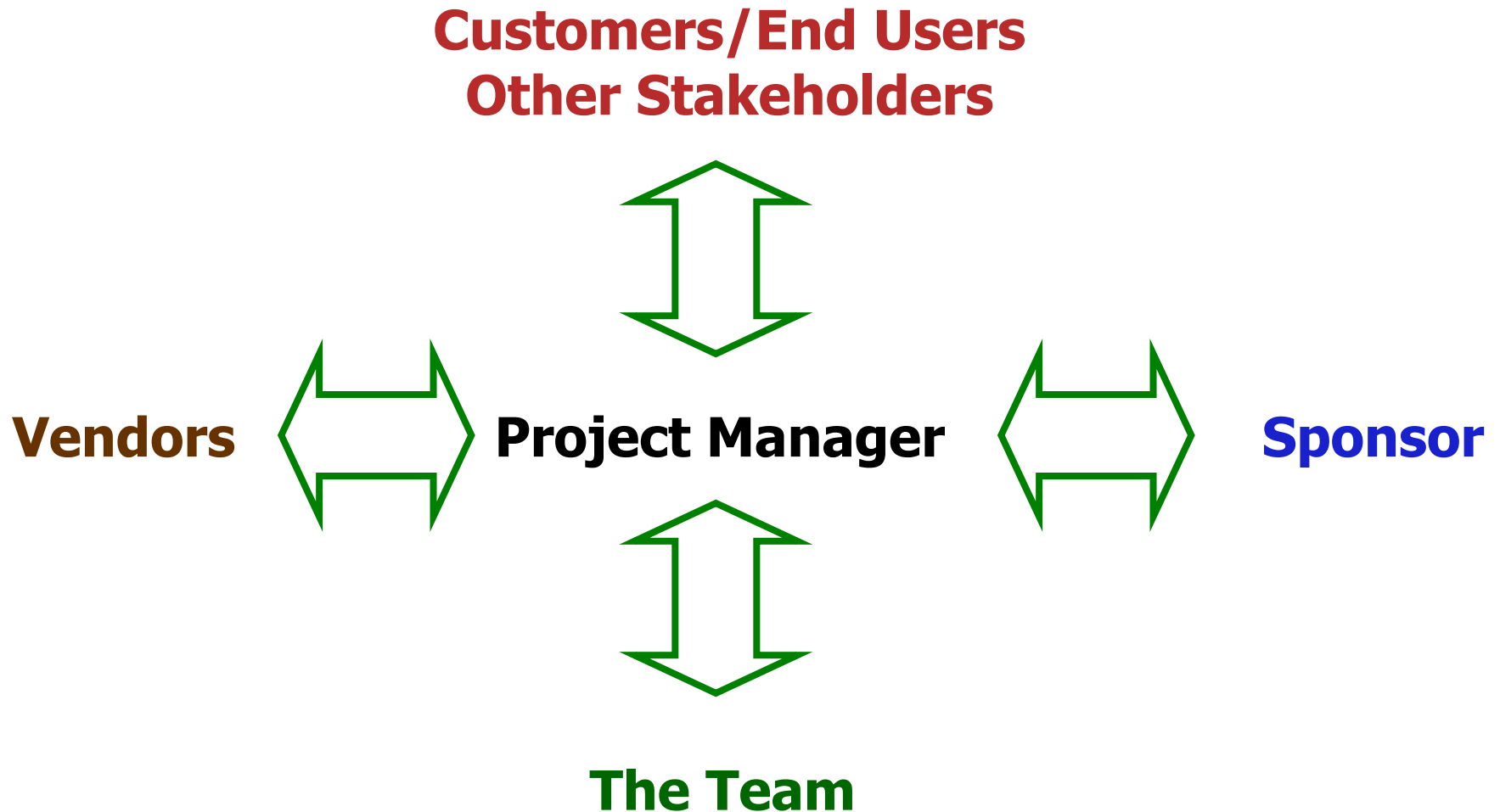
# PM Roles & Responsibilities

<b>Project Management Responsibilities</b>				
<b>Phase/Activity</b>		<b>Project Sponsor</b>	<b>Project Manager</b>	<b>Other</b>
<b>1</b>	<b>Assign the PM</b>			
<b>2</b>	<b>Identify Core Team Members</b>			
<b>3</b>	<b>Review the Project Charter</b>			
<b>4</b>	<b>Conduct the Project Kick-off meeting</b>			
<b>5</b>	<b>Determine Project Category and Define Project Structure</b>			
<b>6</b>	<b>Define the Work</b>			
<b>7</b>	<b>Develop the Project Schedule</b>			
<b>8</b>	<b>Develop the Resource Plan</b>			
<b>9</b>	<b>Refine the Project Plans</b>			
<b>10</b>	<b>Assess Project Risk</b>			
<b>11</b>	<b>Set the Baseline and Publish Project Plans</b>			
<b>12</b>	<b>Track Team Progress</b>			

- ◆ Scope Management Plan
- ◆ Configuration/Change Control Plan
- ◆ Schedule (Time) Management Plan
- ◆ Human Resources Management Plan
- ◆ **Communication Management Plan**
- ◆ Risk Management Plan
- ◆ Cost Management Plan
- ◆ Quality Management Plan
- ◆ Procurement Management Plan
- ◆ Contract Management Plan



# Communication Management Plan



- ◆ Project Manager must:
  - Recognize the need
  - Initiate
  - Follow-up to see that communication was received
  - Follow-up to see that communication was understood

- ◆ Determining the information and communication needs of the project stakeholders
  - Stakeholder communication requirements
  - Information
  - Person responsible to communicate
  - Methods
  - Frequency
- ◆ Document the communication management approach in the Communication Management Plan

- ◆ Develop stakeholder (internal/external) communication requirements
  - Communication item
  - Objective
  - Level of detail
  - Timeframe
  - Primary method
  - Secondary method
  - Owner

# Communication Plan Template

## Internal Stakeholders

Stakeholder (Who Receives)	Communication Item	Objective of Item	Level of Detail	Frequency	Timeframe	Primary Method	Secondary Method	Owner

## External Stakeholders

Stakeholder	Communication Item	Objective of Item	Level of Detail	Frequency	Timeframe	Method	Owner

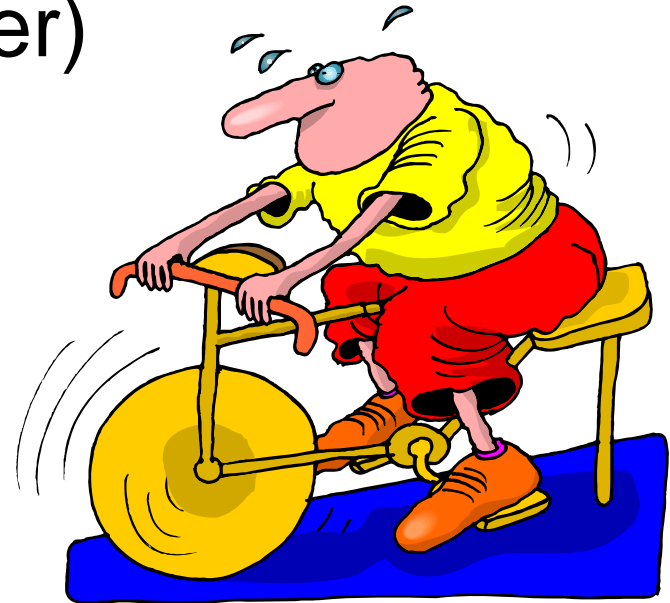
# Recurring Meeting Planner

Meeting	Purpose	Attendees	Primary Mode	Sec. Mode	Freq. (Min)	Other	Owner
Core team meeting	Status report; short-term planning	L. Jones; B. Costas; J. Miller; J. Stein; F. Morgan; T. Dunn	<input checked="" type="checkbox"/> Face-to-face <input type="checkbox"/> Web meeting <input type="checkbox"/> Telephone conference	<input checked="" type="checkbox"/> Face-to-face <input type="checkbox"/> Web meeting <input type="checkbox"/> Telephone conference	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Bi wkly <input type="checkbox"/> Monthly <input type="checkbox"/> Qtly <input type="checkbox"/> Annly.		
			<input type="checkbox"/> Face-to-face <input type="checkbox"/> Web meeting <input type="checkbox"/> Telephone conference	<input type="checkbox"/> Face-to-face <input type="checkbox"/> Web meeting <input type="checkbox"/> Telephone conference	<input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Bi wkly <input type="checkbox"/> Monthly <input type="checkbox"/> Qtly <input type="checkbox"/> Annly		

# Project Roster

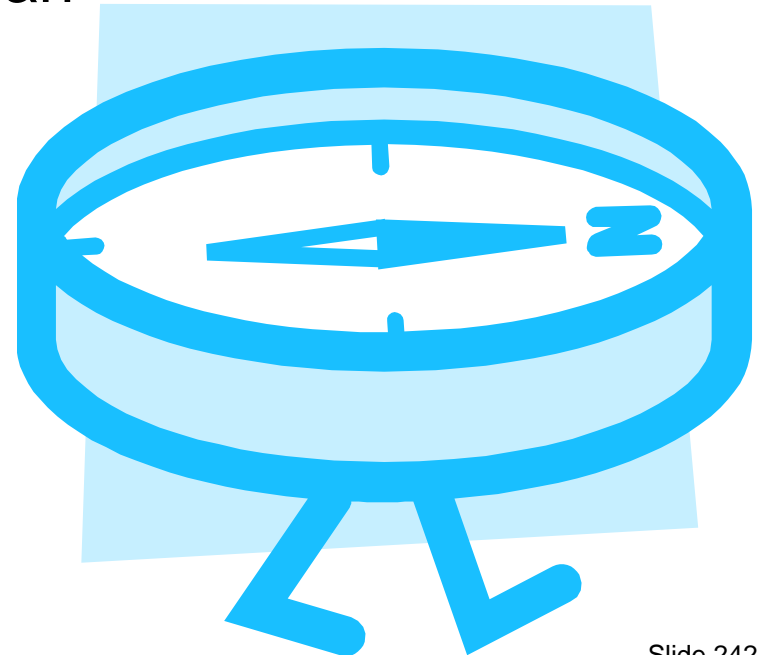
Name	Role	Org.	Contact Information		Preferred Method
			Email	Phone	
D. Miller	Business Analyst	Finance	dmiller@org.com	555-1212	phone

- ◆ Review the communication needs of your project
- ◆ Complete the Communication Plan Template
- ◆ (Internal and External Stakeholders and Recurring Meeting Planner)
- ◆ Timing: 20 minutes



- ◆ Plan for communicating with stakeholders
- ◆ Based on a solid understanding of stakeholder communication requirements
- ◆ Do not overwhelm the stakeholder with minutiae

- ◆ Scope Management Plan
- ◆ Configuration/Change Control Plan
- ◆ Schedule (Time) Management Plan
- ◆ Human Resources Management Plan
- ◆ Communication Management Plan
- ◆ **Risk Management Plan**
- ◆ Cost Management Plan
- ◆ Quality Management Plan
- ◆ Procurement Management Plan
- ◆ Contract Management Plan

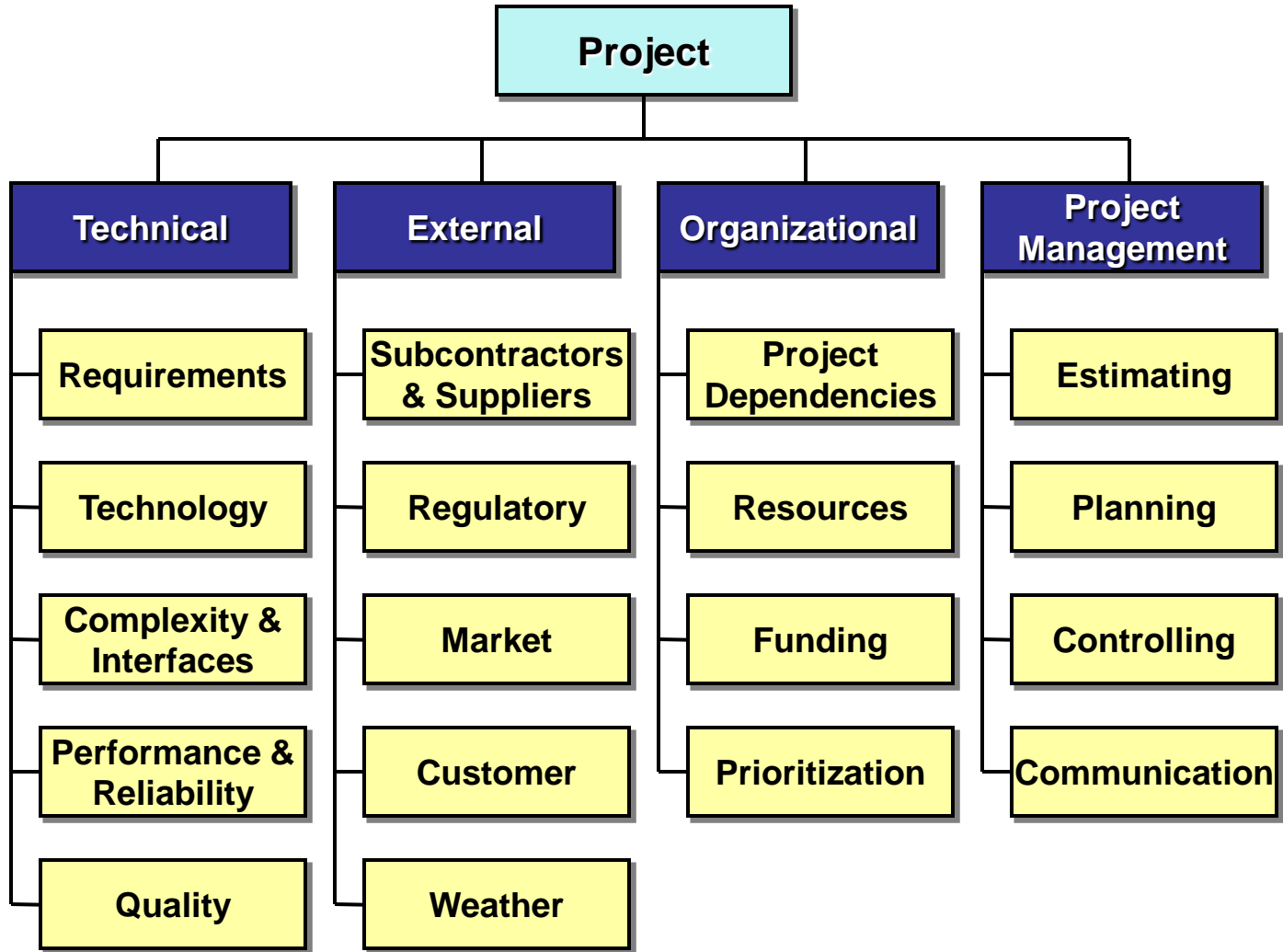


- ◆ Describes the approach, tools, and techniques that we will be using to manage risk in the project:
  - Identify
  - Assess
  - Plan responses
  - Monitor and control

- ◆ Risk Breakdown Structure (RBS)
- ◆ Brainstorming
- ◆ SWOT
- ◆ Checklist Analysis
- ◆ Assumptions Analysis

- ◆ Includes
  - List of identified risks
  - Qualitative assessment
  - Root causes
  - List of potential responses

# Risk Breakdown Structure (RBS)



## ◆ Process

- Assess probability
- Assess impact
- Assess timing
- Calculate risk level
- Risk level thresholds are established as part of the Risk Management Plan



## Defined Conditions for Impact Scales of Risk on Major Project Objectives

Project Objective	Relative or Numerical Scales are shown				
	Very low .05	Low .10	Moderate .20	High .40	Very high .80
<b>Cost</b>	Insignificant cost increase	<10% cost increase	10-20% cost increase	20-40% cost increase	>40% cost increase
<b>Time</b>	Insignificant time increase	<5% time increase	5-10% time increase	10-20% time increase	>20% time increase
<b>Scope</b>	Scope decrease barely noticeable	Minor areas of scope affected	Moderate areas of scope affected	Scope reduction unacceptable to sponsor	Project end item is effectively useless
<b>Quality</b>	Quality degradation barely noticeable	Only very demanding applications are affected	Quality reduction requires sponsor approval	Quality reduction unacceptable to sponsor	Project end item is effectively useless

Example only. Tailor to individual project.

# Simple Probability and Impact Scales

- ◆ Scale: 1 (low) – 5 (high)

Probability Scale	
1	< 20% chance
2	20 – 40% chance
3	41 – 60% chance
4	61 – 80% chance
5	>80% chance

Impact Scale	
1	Less than 5% change to schedule, scope, budget, or quality
2	5 – 10% change to schedule, scope, budget, or quality
3	11 – 15% change to schedule, scope, budget, or quality
4	16 – 24% change to schedule, scope, budget, or quality
5	25% change to schedule, scope, budget, or quality

**Note: Risk probability of 85+ percent is considered fact (constraint) and should be included in planning!!!**

# Timing Scale

Within the next six months	1
From six months to a year from now	.66
Over a year from now	.33

## ◆ Probability

- What is the likelihood that \_\_\_\_\_ will cause problems or delays to my project?
- 1 = Not likely      5 = Very likely

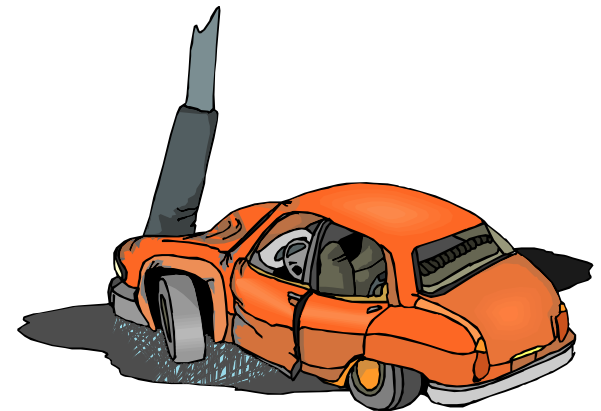


# Risk Register

<i><b>Risk</b></i>	<i><b>Prob. (1-5)</b></i>	<i><b>*</b></i>	<i><b>Impact (1-5)</b></i>	<i><b>*</b></i>	<i><b>Timing</b></i>	<i><b>=</b></i>	<i><b>Risk Level (1-25)</b></i>
<i><b>Audit &amp; Control Needs</b></i>	<b>3</b>	*		*		=	
<i><b>Budget</b></i>	<b>2</b>	*		*		=	
<i><b>Customer Sophistication</b></i>	<b>4</b>	*		*		=	

## ◆ Impact Potential

- If the risk occurs, what level of impact would be experienced?
- 1 = Low impact      5 = High impact



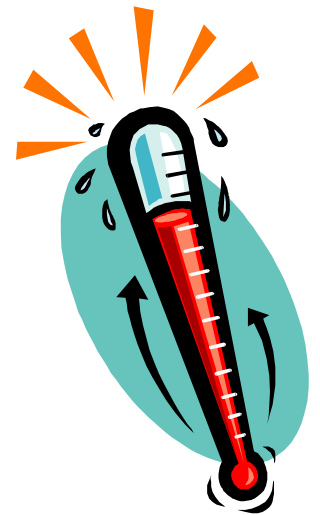
# Risk Register

<b><i>Risk</i></b>	<b><i>Prob. (1-5)</i></b>	<b><i>*</i></b>	<b><i>Impact (1-5)</i></b>	<b><i>*</i></b>	<b><i>Timing</i></b>	<b><i>=</i></b>	<b><i>Risk Level (1-25)</i></b>
<b><i>Audit &amp; Control Needs</i></b>	<b>3</b>	<b>*</b>	<b>5</b>	<b>*</b>		<b>=</b>	
<b><i>Budget</i></b>	<b>3</b>	<b>*</b>	<b>4</b>	<b>*</b>		<b>=</b>	
<b><i>Customer Sophistication</i></b>	<b>5</b>	<b>*</b>	<b>5</b>	<b>*</b>		<b>=</b>	

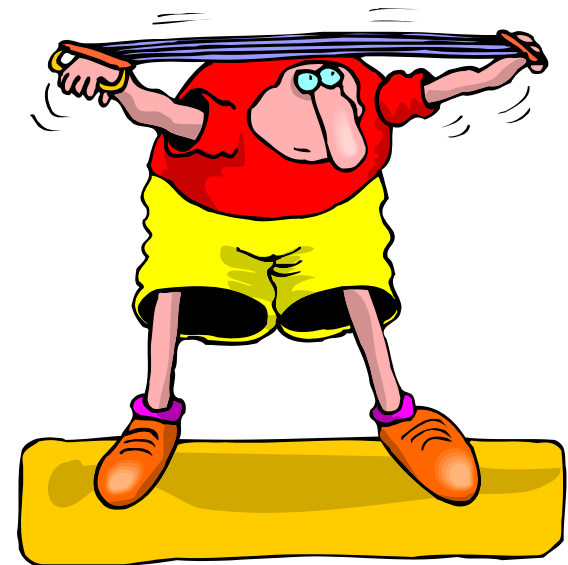
# Risk Register

<b><i>Risk</i></b>	<b><i>Prob. (1-5)</i></b>	<b><i>*</i></b>	<b><i>Impact (1-5)</i></b>	<b><i>*</i></b>	<b><i>Timing</i></b>	<b><i>=</i></b>	<b><i>Risk Level (1-25)</i></b>
<b><i>Audit &amp; Control Needs</i></b>	<b>3</b>	<b>*</b>	<b>5</b>	<b>*</b>	<b>.66</b>	<b>=</b>	<b>10</b>
<b><i>Budget</i></b>	<b>3</b>	<b>*</b>	<b>4</b>	<b>*</b>	<b>1</b>	<b>=</b>	<b>12</b>
<b><i>Customer Sophistication</i></b>	<b>5</b>	<b>*</b>	<b>5</b>	<b>*</b>	<b>.33</b>	<b>=</b>	<b>5</b>

- ◆ 1-9
  - Low-level risk
- ◆ 10-15
  - Medium-level risk
- ◆ 16-25
  - High-level risk

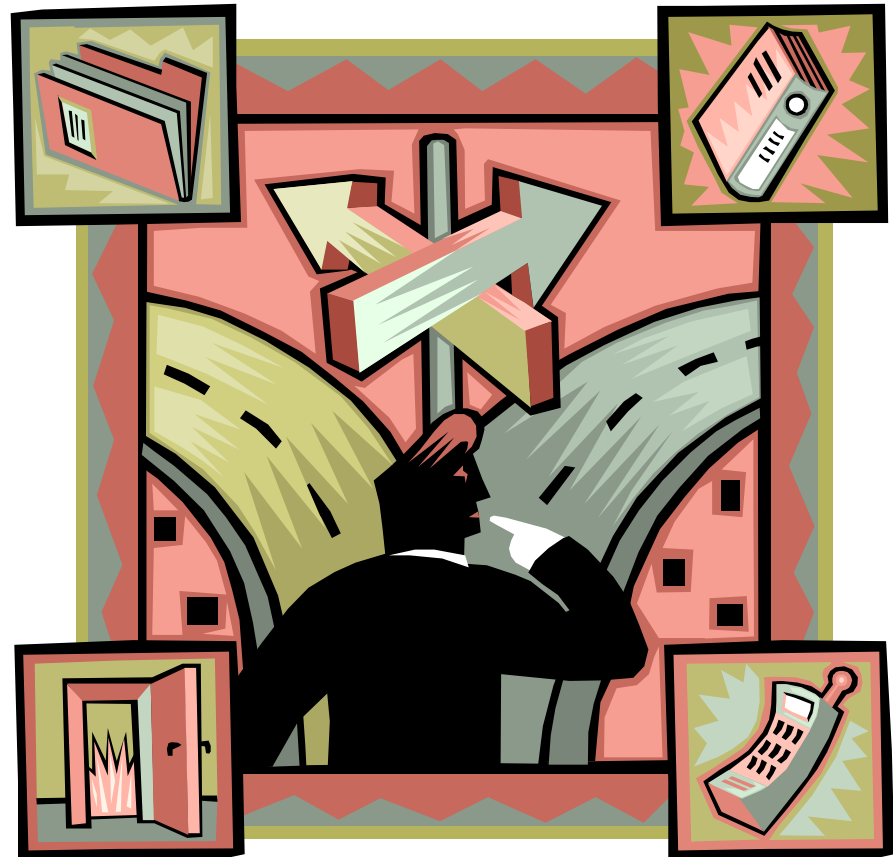


- ◆ Working as a team, use the Risk Register to identify and rate the potential risks to your project:
  - Complete the “Probability” column
  - Complete the “Potential Impact” column
  - Calculate the risk levels
  
- ◆ Timing: 15 minutes



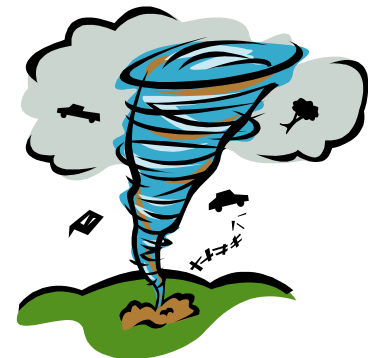
# Risk Response Planning

- ◆ Develop options and determine actions to manage risks



# Risk Response Planning

- ♦ ***Cause*** – determine the root cause of the risk; one cause may result in multiple risks
- ♦ ***Consequence*** – specify what may happen if the risk becomes a reality
- ♦ ***Avoidance Plan*** - identify possible preventive or avoidance action
- ♦ ***Mitigation Plan*** - develop a set of actions that will lessen the probability and/or severity of the risk



- ◆ ***Transference*** - assigning the management of the risk to another party
- ◆ ***Acceptance***
  - Passive: decide to take no action
  - Active: establish a contingency reserve
- ◆ ***Contingency Plan*** - a planned set of tasks that will be executed if and when the risk event materializes
- ◆ ***Trigger Event*** – an event (either within the work of the project or an external event) that determines if the risk will become a reality
- ◆ ***Owner*** – the individual responsible to monitor the risk

## During Execution:

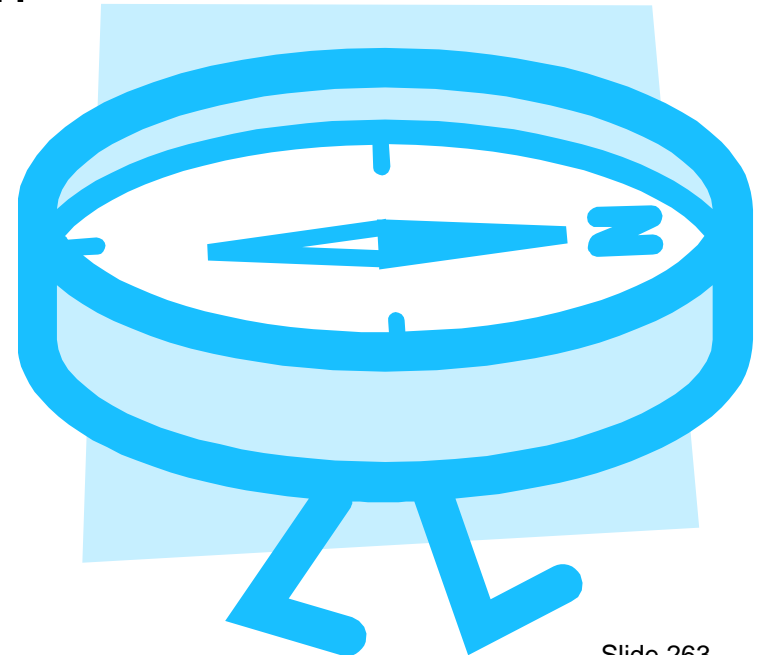
- ◆ Response Plan Effectiveness – assess how well the risk response activities have addressed the risk
- ◆ Residual Risks – an assessment of the risk that remains after risk response actions have been taken
- ◆ Secondary Risks – risks that are caused by the risk response actions
- ◆ Risk Status – a description of what is going on with the risk at the time of the update
- ◆ Closure Date – the date that the risk is determined to be resolved

# Risk Response Planning Exercise

- ◆ Working as a team, choose two risks that you have identified
- ◆ Use the Risk Register template to develop Risk Management Plans (Cause thru Owner columns)
- ◆ Timing: 20 minutes



- ◆ Scope Management Plan
- ◆ Configuration/Change Control Plan
- ◆ Schedule (Time) Management Plan
- ◆ Human Resources Management Plan
- ◆ Communication Management Plan
- ◆ Risk Management Plan
- ◆ **Cost Management Plan**
- ◆ Quality Management Plan
- ◆ Procurement Management Plan
- ◆ Contract Management Plan



## Cost Management Purpose:

- ◆ To ensure that the project team and its contractors will complete the project within budget. Cost management also includes an analysis of options and issues to determine their potential effect on the project's budget and operations.

The Cost Management Plan includes:

- ◆ An introduction that provides relevant cost information
- ◆ A definition of roles and responsibilities
- ◆ A description of the Cost Management approach

## ♦ Introduction

- Cost repository
- Location of current budget and expenditures
- Name of the tool
- Acronyms

## ♦ Participant Roles and Responsibilities

- Department roles
- Sponsor role
- Contractor role
- Federal partner role
- County or local office role



- ◆ Cost Planning
  - Resource planning
  - Estimating
  - Baseline
- ◆ Cost Tracking
  - State staff labor hours
  - Consultant labor hours
  - Overall project costs
- ◆ Cost Reporting and Metrics
  - Actual costs
  - Variance thresholds



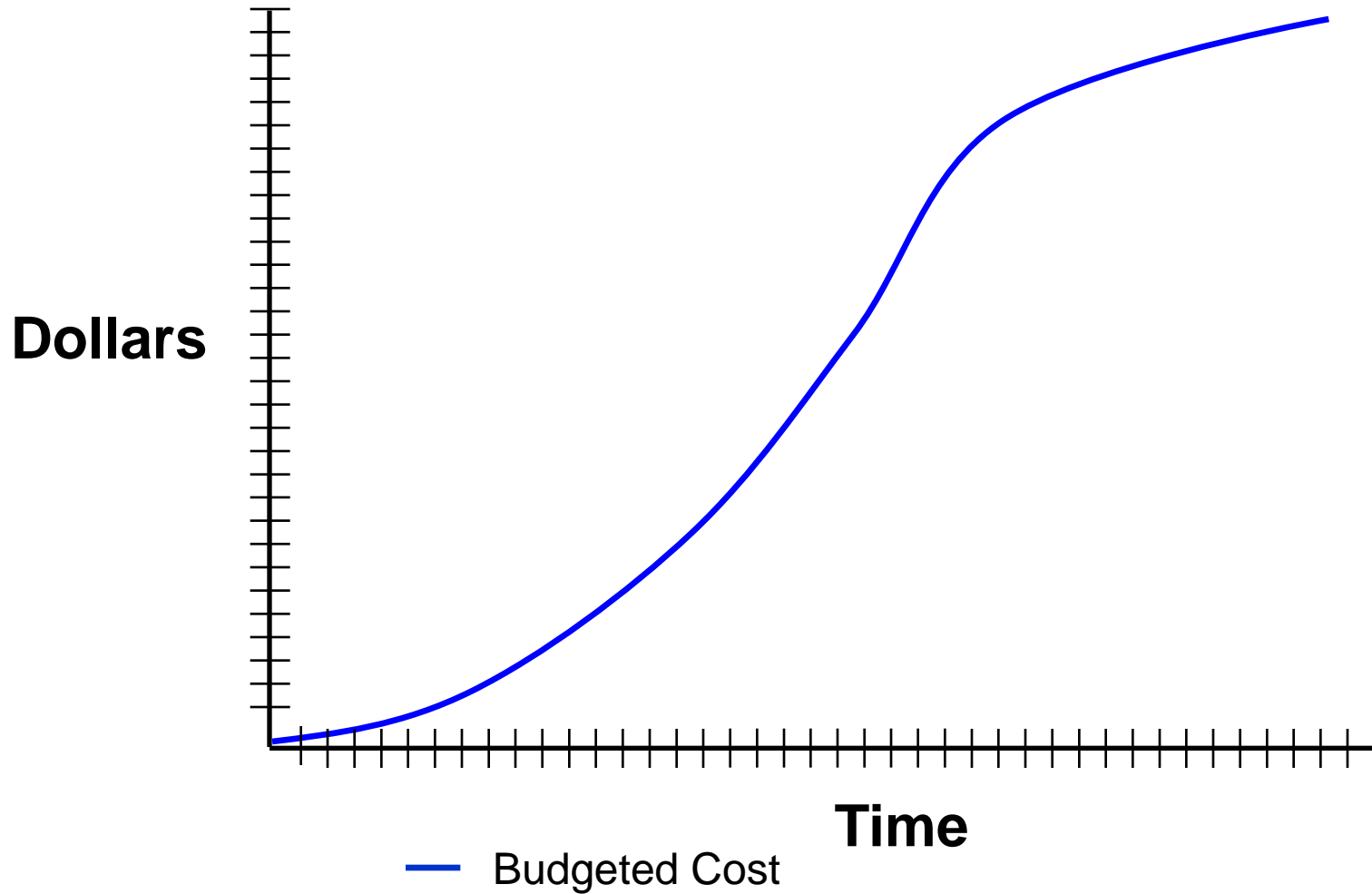
- ◆ Tabular report
- ◆ Graphs
- ◆ Histograms

# Cost Tabular Report

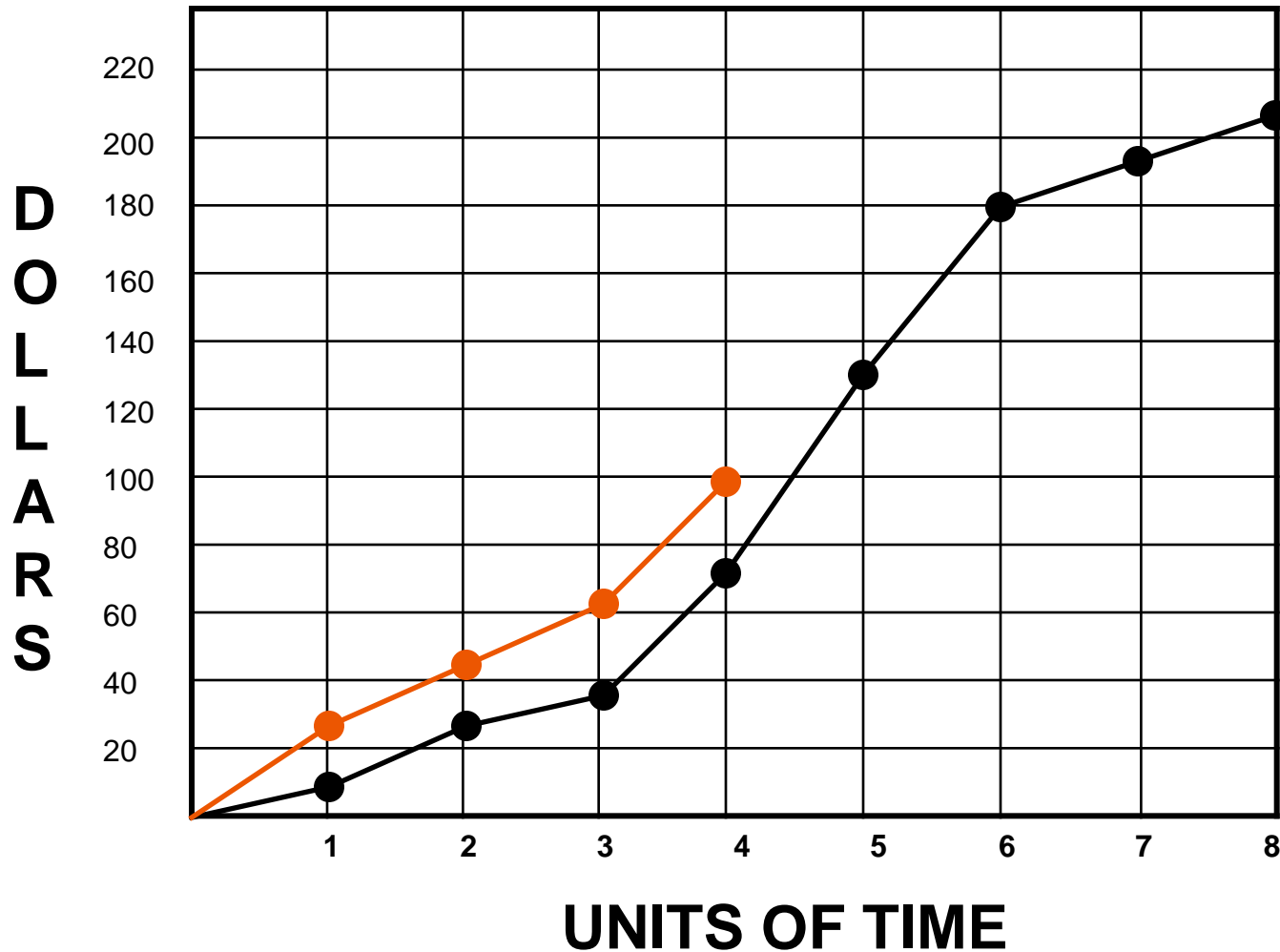
Cumulative Cost Spreadsheet									
Total Budget \$225M					P=Plan A= Actual				
Cost Categories		Time Periods							
		1	2	3	4	5	6	7	8
Labor	P	\$4	\$12	\$20	\$32	\$48	\$69	\$77	\$83
	A	\$4.1	\$12.5	\$24	\$37.5				
Equipment	P	\$0	\$6	\$12	\$28	\$54	\$76	\$80	\$82
	A	\$0	\$6	\$12	\$20				
Materials	P	\$3	\$5	\$7	\$14	\$26	\$44	\$58	\$60
	A	\$3	\$5.1	\$6.9	\$13.9				
Total Period		\$7	\$23	\$39	\$74	\$128	\$189	\$215	\$225
Total Actual		\$7.1	\$23.6	\$42.9	\$71.4				

As-of-date

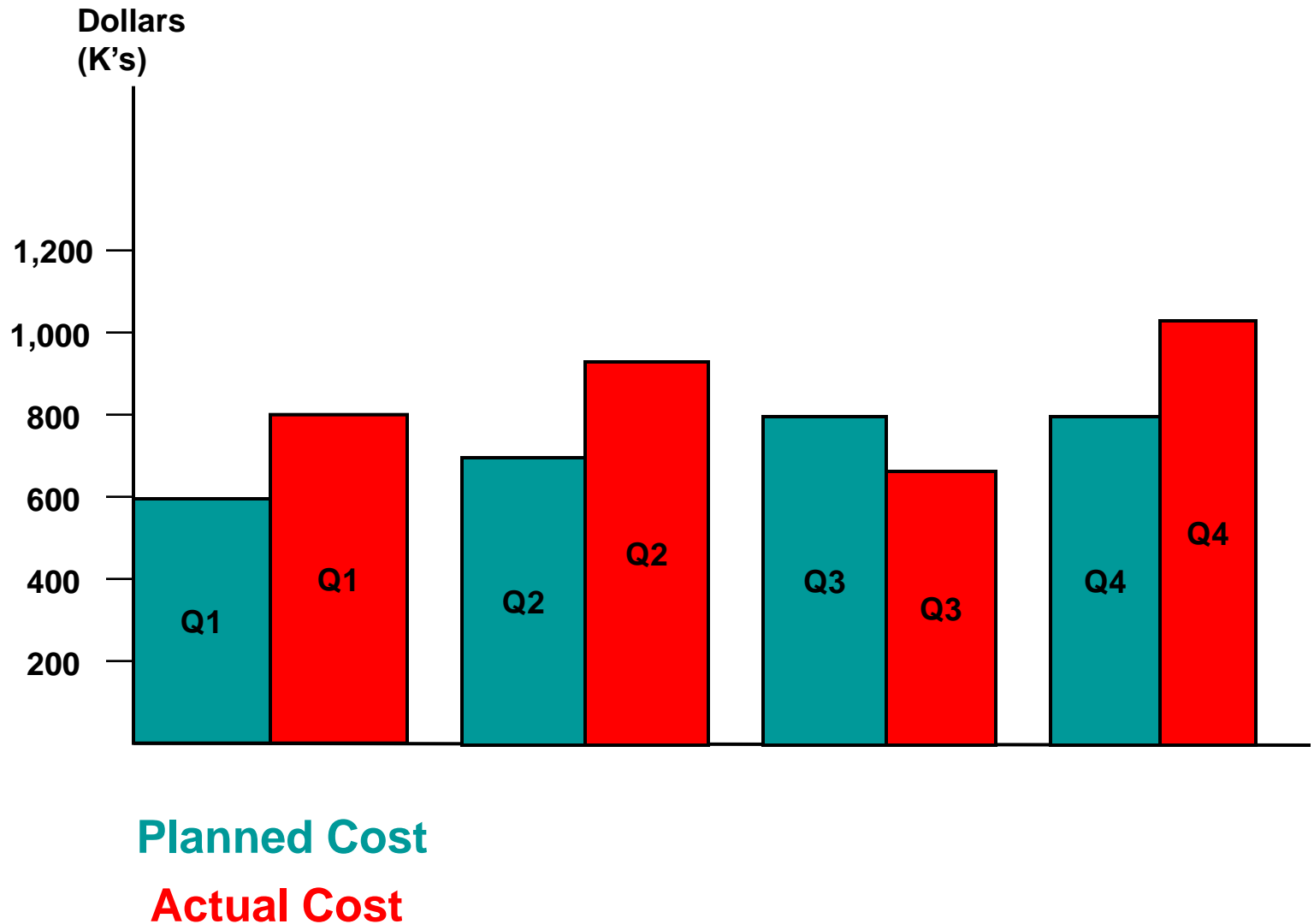
# Cost Baseline Graph



# Cost: Plan vs. Actual Graph



# Actual vs. Planned Costs



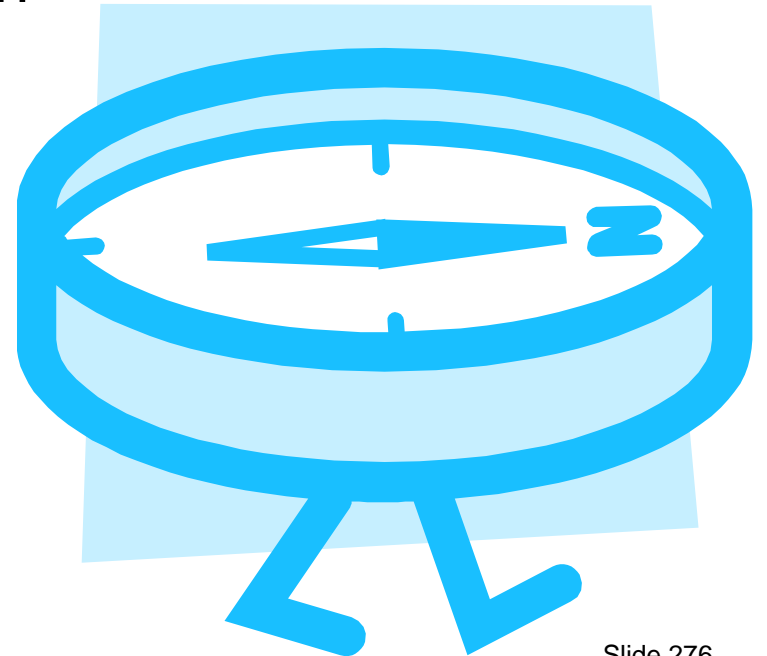
- ◆ Cost Performance Index (CPI)
- ◆ Estimate to Complete (ETC)
- ◆ Estimate at Completion (EAC)

- ◆ Cost Control and Changes
  - Thresholds for variances
  - Executive Steering Committee role
  - Cost re-planning
  - Re-baselining
- ◆ Cost Closeout
  - Project cost close
  - Annual cost summary



- ◆ Refer to the Cost Management Plan Worksheet.
- ◆ Complete the following sections:
  - Cost Planning
  - Cost Tracking
  - Cost Metrics and Reporting
  - Cost Control and Changes
- ◆ Timing: 20 minutes

- ◆ Scope Management Plan
- ◆ Configuration/Change Control Plan
- ◆ Schedule (Time) Management Plan
- ◆ Human Resources Management Plan
- ◆ Communication Management Plan
- ◆ Risk Management Plan
- ◆ Cost Management Plan
- ◆ **Quality Management Plan**
- ◆ Procurement Management Plan
- ◆ Contract Management Plan



- ◆ All the activities that determine quality standards, objectives, and responsibilities so that the project will satisfy quality requirements and produce a product that meets quality standards

PMBOK 3<sup>RD</sup> Edition

- ◆ Quality is planned in, not inspected in!

- ◆ Identify which quality standards are relevant to the project
- ◆ Determine how to satisfy them
- ◆ Document the standards and quality management approach in the Quality Management Plan

- ◆ Introduction
- ◆ Participant roles and responsibilities
- ◆ Quality Management steps
  - Process
  - Standards and guidelines
  - Compliance

# Product Quality Review/Audit Template

Deliverable	Criteria	Timing

Resources	Procedures

# Quality Action Form

#	Defect	Corrective Action	Date	Results Acceptable	Further Action
15	Graphics unstable when file is transmitted	Save files in earlier version	9/4/08	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	none

- ◆ Making sure that established procedures are followed
- ◆ Contributes to continuous process improvement

- ◆ Monitoring results as compared to relevant standards
- ◆ Identifying ways to eliminate causes of unsatisfactory results
- ◆ Performed throughout the project
- ◆ QC is often performed by a quality control department or similarly titled organizational unit

- ◆ Complete the Quality Audit/Review section of the Quality Management Plan template for your project.
- ◆ Check your WBS to be sure that you have included all of the identified quality audits and/or reviews.
- ◆ Timing: 15 minutes

- ◆ Scope Management Plan
- ◆ Configuration/Change Control Plan
- ◆ Schedule (Time) Management Plan
- ◆ Human Resources Management Plan
- ◆ Communication Management Plan
- ◆ Risk Management Plan
- ◆ Cost Management Plan
- ◆ Quality Management Plan
- ◆ **Procurement Management Plan**
- ◆ Contract Management Plan

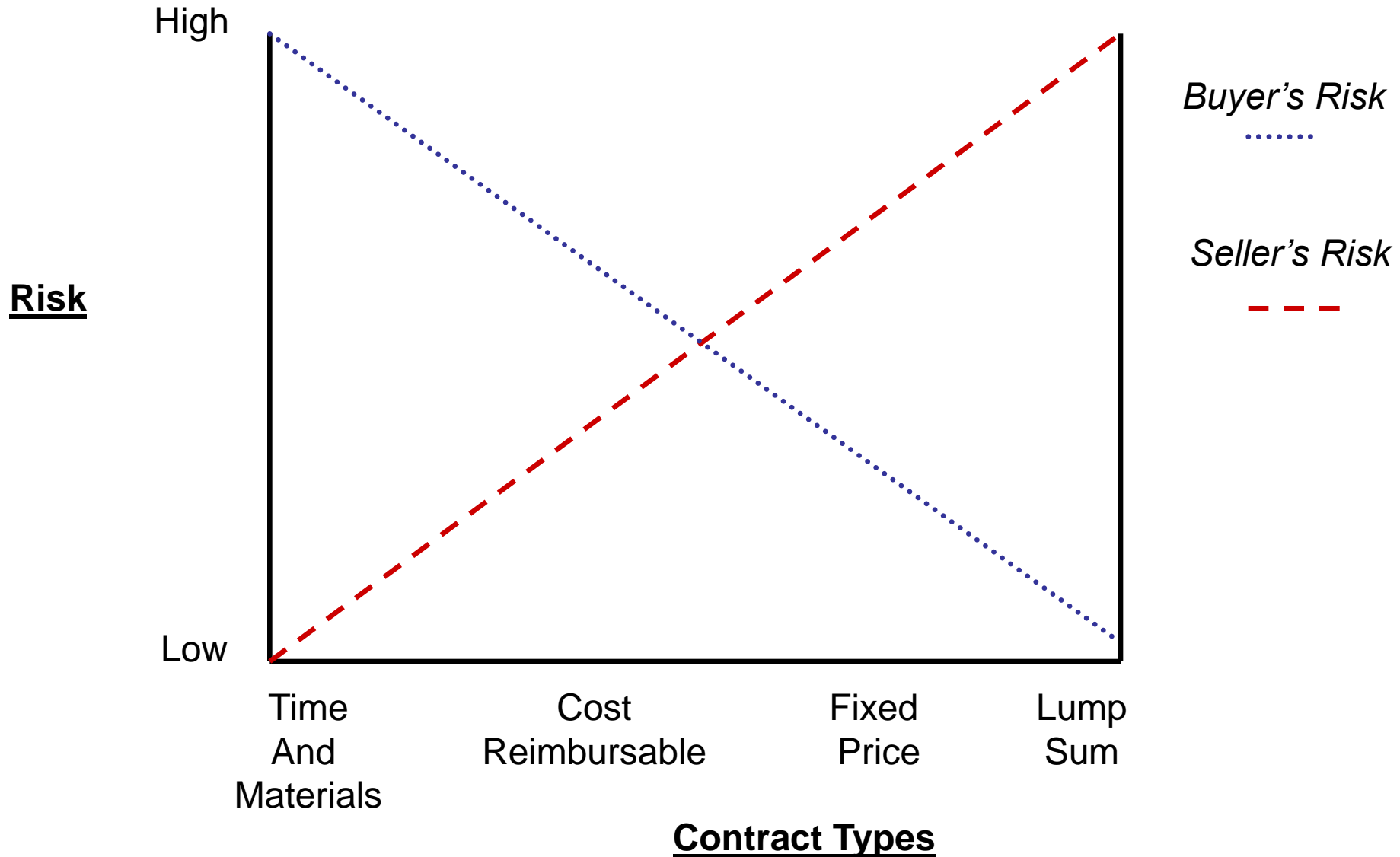


## Procurement Management Purpose:

- ◆ To acquire goods and/or services at the best possible total cost of ownership, in the right quantity and quality, at the right time, in the right place, and from the right source—all used on the project via a contract

- ◆ Conduct market research
- ◆ Perform, make, or buy analysis
- ◆ Decide on a solicitation instrument
- ◆ Decide on contract type(s)
- ◆ Document the procurement approach in the Procurement Management Plan

# Contract Types



- ◆ Hiring process – used to hire contractors
- ◆ Acquisition
  - Category
  - Item
  - Approximate cost
  - Solicitation type – IFB, RFP, RFI, RFQ, RFO
  - Procurement type – CMAS, MSA, SLP, NCB, CSSI, CSSI exemption request, other
  - Other
  - Rationale
  - Known prospective vendors
  - WBS id#
  - Approval

- ◆ Term of proposed contract
- ◆ Cap for billing hours
- ◆ Process to negotiate billing rates for substitute personnel
- ◆ Planned payment protections

**Step 1:** Plan Approval

**Step 2:** Solicitation Preparation

**Step 3:** Contractor/Supplier Selection

**Step 4:** Qualification Audit

**Step 5:** Negotiations

- Round 1: Scope of Work
- Round 2: Budget
- Round 3: Payment Terms
- Round 4: General Terms & Conditions

*Clearly specify ...*

- ◆ Contingency Plans
- ◆ Issue Escalation Plan
- ◆ References

*Clearly specify ...*

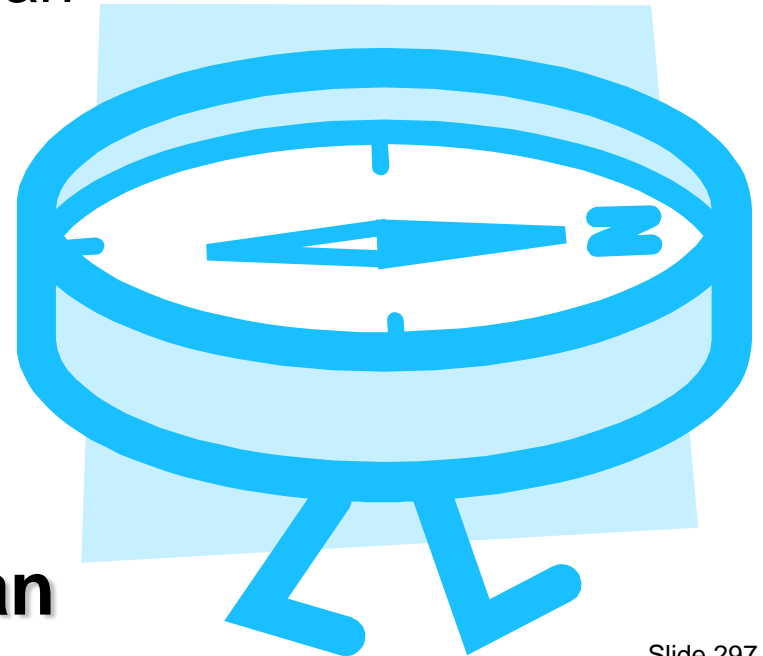
- ◆ Scope of work
- ◆ Timing of invoices
- ◆ Deliverables
- ◆ Quality expectations

# Exercise

	Column A		Column B
1	RFP	A	Information only
2	Fixed Price	B	Commodities
3	Cost Plus	C	All at once
4	Time and Materials	D	Low risk to seller
5	RFQ	E	Solution unknown
6	Lump Sum	F	High risk to seller
7	RFS	G	Solution known
8	RFI	H	Highest risk to buyer

- ◆ Identify two items (goods or services) that will be acquired for your project
- ◆ Work those items through the Acquisition section of the Procurement Management Plan
- ◆ Timing: 15 minutes

- ◆ Scope Management Plan
- ◆ Configuration/Change Control Plan
- ◆ Schedule (Time) Management Plan
- ◆ Human Resources Management Plan
- ◆ Communication Management Plan
- ◆ Risk Management Plan
- ◆ Cost Management Plan
- ◆ Quality Management Plan
- ◆ Procurement Management Plan
- ◆ **Contract Management Plan**



## Contract Management Purpose:

- ◆ To ensure that contractors and suppliers are adhering to the terms and conditions of the contracts and providing the required services/products that meet the expectations of the project

- ◆ Identification of the activities to be performed or initiated by project staff to manage, track, amend, and close a contract
- ◆ Documentation of the overall approach in a Contract Management Plan

- ◆ Introduction (repository & monitoring process)
- ◆ Roles and Responsibilities
- ◆ Contract and Invoice Approval Authorities
- ◆ Contractor Performance Management
- ◆ Contract Management
- ◆ Closing the Contract

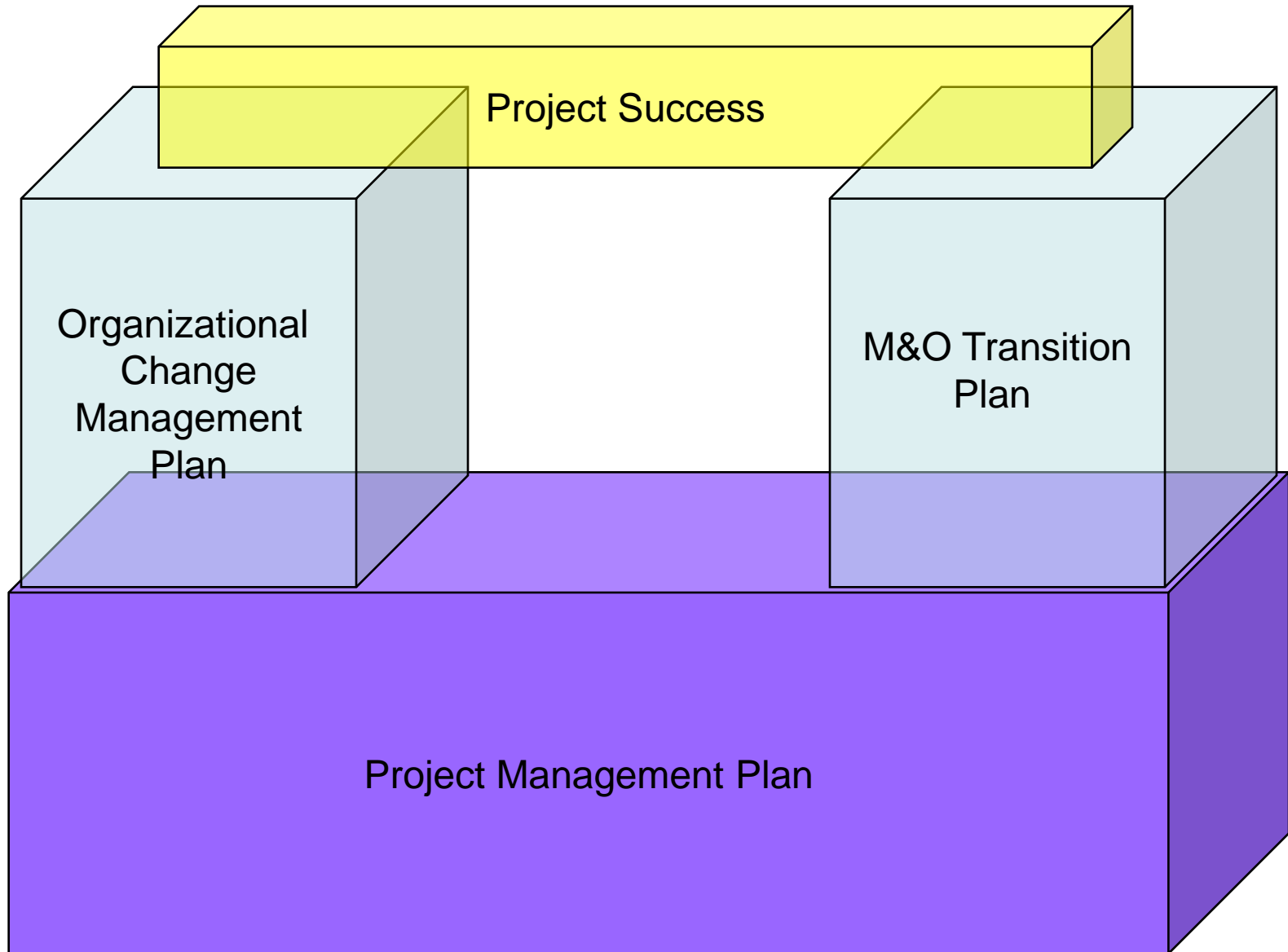
- ◆ Contract Management Process
- ◆ Deliverables Management
  - Process
  - Non-document deliverables review/approval
  - Deliverables metrics
  - Invoices
  - Invoice metrics

- ◆ Contract Amendment Process
- ◆ Work Authorization Process
- ◆ Closing
  - Process
  - Final work products
  - Contractor evaluation
  - Final invoices
  - Record archive
- ◆ Contract Tracking Database

- ◆ Monitoring and Auditing Process
- ◆ Issue resolution
- ◆ Status meetings and progress review
- ◆ Contractor performance
  - Defect management
  - Deficiency
  - Disputes
  - Staff monitoring
  - Staff replacement

- ◆ Complete the Contractor Performance Management section of the Contract Management Plan.
- ◆ Timing: 15 minutes

# CA-PMM Planning Outputs



## Organizational Change Purpose:

- ◆ To transition the people and processes impacted by the project from their current situation to the new situation
- ◆ To ensure that a new situation has been achieved and that it aligns with the strategic objectives of the organization and the project objectives

## Key Steps:

- ◆ Identify and evaluate the personal and cultural barriers to organizational change
- ◆ Identify and evaluate work disruptions that are the consequence of the project
- ◆ Develop strategies and tactics to minimize anticipated barriers and to leverage key strengths to increase readiness for change

- ◆ Action planning
- ◆ Stakeholder training plan

# Action Planning

Stakeholder	Awareness	Influence	Resistance	Known Concerns	Optimum Communication Channel	Proposed Actions
County Office Personnel	<input type="checkbox"/> high <input type="checkbox"/> medium <input checked="" type="checkbox"/> low	<input type="checkbox"/> high <input checked="" type="checkbox"/> medium <input type="checkbox"/> low	<input checked="" type="checkbox"/> high <input type="checkbox"/> medium <input type="checkbox"/> low	Happy with current internal tracking system; not looking for a change	Face-to-face meeting with key county personnel	Demo and feedback meeting, training; Provide data entry assistance

# Stakeholder Training Plan

Stakeholder	Training Required	Type of Training Required	When	Provider	Action Required
Human Resource Managers	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Classroom: Roles & resp., skills development	6 weeks prior to system implement	IT Training	Provide info to training & review training plan

- ◆ Complete the Organizational Change Management Plan for your project.
- ◆ Timing: 15 minutes

## M&O Transition Plan Purpose:

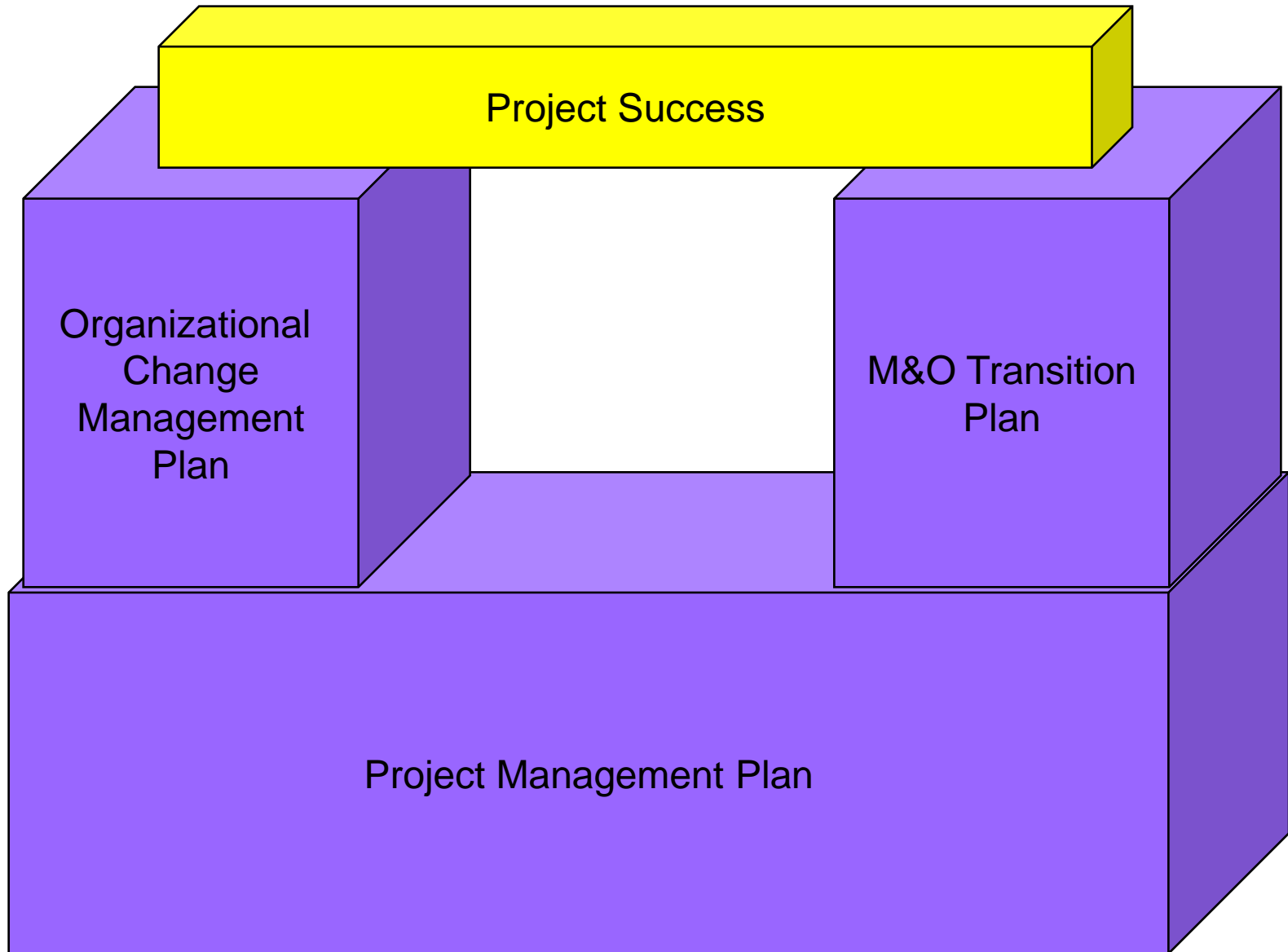
- ◆ To ensure that maintenance and operations infrastructure is in place prior to the hand-off of the system, service, or product
- ◆ To facilitate the transfer of knowledge from the project team to the M&O team

- ◆ Introduction
  - Repository
  - Tools
  - Checklist
- ◆ Participant Roles and Responsibilities
- ◆ M&O Transition Management Steps
  - Management process
  - Closeout process
  - Metrics

- ◆ Complete the M & O Transition Steps section of the Maintenance & Operations Transition Plan
- ◆ Timing: 10 minutes

- ◆ We have now completed management plans for a number of project management areas
- ◆ Output: Project Management Plan
  - Dynamic
  - Updated

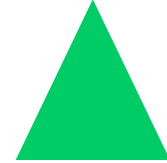
# CA-PMM Planning Outputs



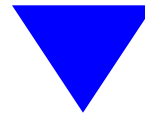
# Executing



**Executing**



- 
- 8. Deliverable Acceptance**
  - 9. Status Report**
  - 10. Project Management Plan Update**
  - 11. Benefit Validation**
  - 12. Customer Acceptance**
  - 13. Product Implementation**



**Deliverables & Performance Data**

## ◆ Purpose

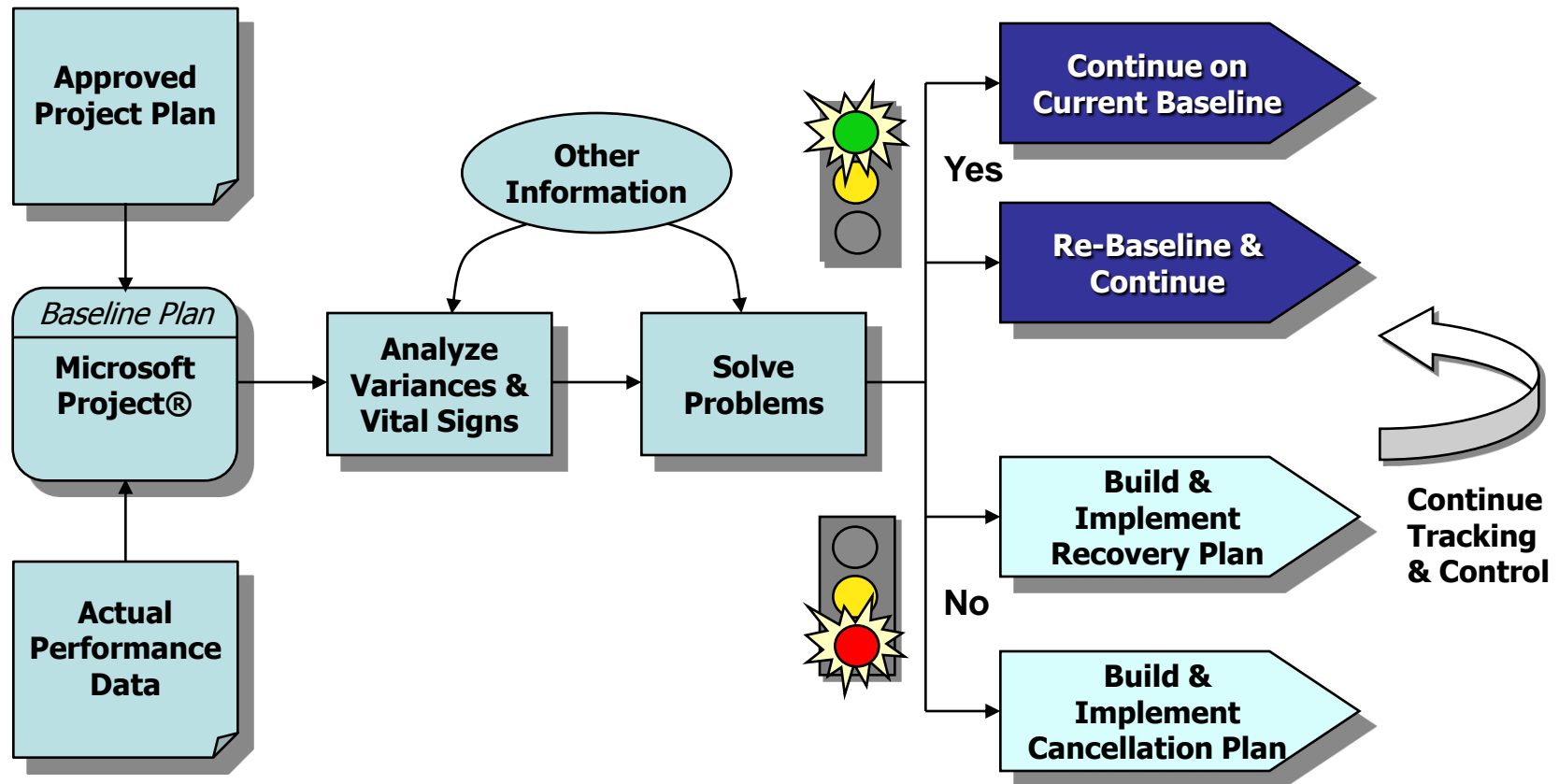
- Coordinating people and resources
- Complete the work defined in the Project Management Plan
- Meet the requirements

## ◆ Outputs

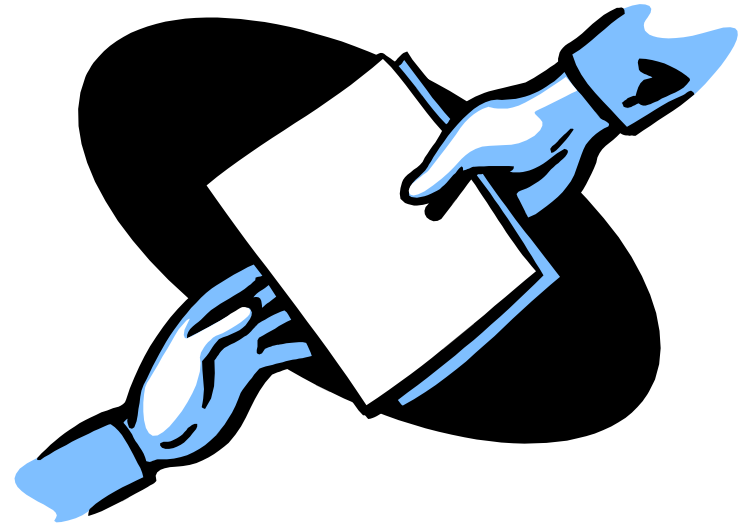
- Deliverables
- Timely information to stakeholders

- ◆ Producing and verifying deliverables
- ◆ Collecting status and performance data
- ◆ Analyzing variances
  - Scope
  - Schedule
  - Cost
  - Risk monitoring and control
- ◆ Solving problems

# The Project Execution Process



- ◆ During Executing:
  - Deliverables are produced
  - Deliverables are accepted



# Deliverable Acceptance Template

No.	Deliverable	Acceptance Criteria	Sign-off Authority
15	E-Templates	Content approved; fully functional; edited for spelling, grammar, and punctuation	G. Forrest
16	Slide deck	Notes pages complete; edited for spelling, grammar, and punctuation	G. Forrest
17	Curriculum	60/40 balance between lecture and activity; timing articulated; content covers complete methodology	G. Forrest

# Customer Acceptance

No.	Deliverable	Acceptance Criteria	Sign-off Authority	Meets Criteria	Action Required
15	E-Templates	Content approved; fully functional; edited for spelling, grammar, and punctuation	G. Forrest	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Correct error message XYZ
16	Slide deck	Notes pages complete; edited for spelling, grammar, and punctuation	G. Forrest	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	none
17	Curriculum	60/40 balance between lecture and activity; timing articulated; content covers complete methodology	G. Forrest	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	none

- ◆ Complete the No. thru Acceptance Criteria columns of the Deliverable Acceptance Criteria template for your project.
- ◆ Timing: 15 minutes

# Project Status Meetings



- ◆ Team to project manager
- ◆ Project manager to sponsor
- ◆ Sponsor to Executive/Steering Committee

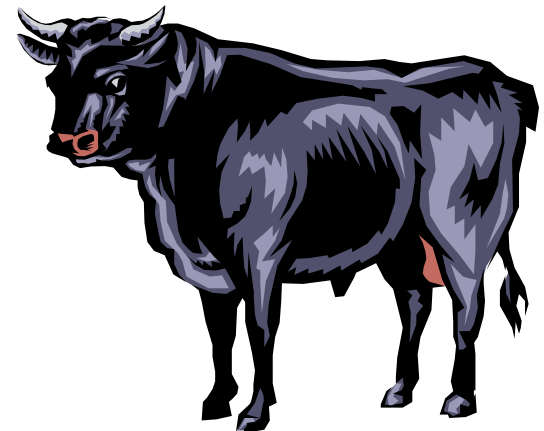


# Progress Review Principles

- ◆ Review regularly
- ◆ Progress vs. Effort
- ◆ Look ahead
- ◆ Vital signs



- ◆ **Headline**
- ◆ Current status
- ◆ Next step
- ◆ Explanation



- ◆ Participants
  - Every individual to whom work is assigned
- ◆ Effective meeting ground rules
  - Candor
  - Focus on critical path
  - On time start for all meetings
- ◆ Look ahead window



# Team Member to Project Manager

Task or Deliverable	Scheduled Completion Date	Actual Completion Date	Issues
<b>Accomplished This Week</b>			
<b>Planned/Scheduled Completion in Next Two Weeks</b>			
Status Summary	Yes/No	Explanation	
<input type="checkbox"/> Will all assigned tasks be accomplished by their due date?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<input type="checkbox"/> Are there any planned tasks that won't be completed?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<input type="checkbox"/> Are there problems which affect your ability to accomplish assigned tasks?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
<input type="checkbox"/> Do you plan to take time off that is not currently scheduled? If so, when?			

## Status of Assigned Issues

Issue #	Description	Due Date	Status

- ◆ Look back
- ◆ Look ahead



# Look Ahead Window

## For Weekly Project Review Meeting

<i>Wk 10</i>	<i>Wk 11</i>	<i>Wk 12</i>	<i>Wk 13</i>
<i>Look Back</i> ←	<i>Look Ahead</i> →		

## For Bi - Weekly Project Review Meeting

<i>Wk 10</i>	<i>Wk 11</i>	<i>Wk 12</i>	<i>Wk 13</i>	<i>Wk 14</i>	<i>Wk 15</i>
<i>Look Back</i> ←		<i>Look Ahead</i> →			

Questions	Yes/No	Cause	Impact	Action Required
1. Were recent milestones completed on schedule?				
2. Were any key milestones or deliverables rescheduled?				
3. Was work done that was not planned?				
4. Were there any changes to scope?				
5. Were tasks added that were not originally estimated?				
6. Were any tasks or milestones removed?				
7. Were any scheduled tasks not started?				
8. Are there any major new issues?				
9. Are there any staffing problems?				

Questions	Yes/No	Impact	Action Required
1. Will upcoming critical path milestones or deliverables be completed on schedule?			
2. Do any key milestones or deliverables need to be rescheduled?			
3. Is there any unplanned work that needs to be done?			
4. Are there any expected or recommended changes to scope?			
5. Are there any tasks not originally estimated that will need to be added?			
6. Are there any tasks or milestones that should be removed from the plan?			
7. Are there any scheduled tasks that will likely have a delayed start?			
8. Are any major new issues foreseeable?			
9. Are any staffing problems anticipated?			

# PM to Sponsor - Milestones

## Current Status and Accomplishments:

*Describe deliverables completed and milestones met during **this reporting period**.*

## Project Milestones:

*List key milestones and their dates from the project schedule. Explain in issues section if a milestone's status is behind.*

Milestone	Target Date	Forecast Date	Status	If Delayed, Impact to Implementation Date	Date Completed
			<input type="checkbox"/> on target <input type="checkbox"/> delayed <input type="checkbox"/> done		
			<input type="checkbox"/> on target <input type="checkbox"/> delayed <input type="checkbox"/> done		
			<input type="checkbox"/> on target <input type="checkbox"/> delayed <input type="checkbox"/> done		

# PM to Sponsor - Variances

## Variances

*Check the appropriate box for each project element listed below. Please describe the actions*

*you plan to take for those items marked "Caution" or "Significant Variance."*

	On Plan <5%	Caution 5-10%	Significant Variance >10%	Action Required
<b>Schedule</b>				
<b>Milestones</b>				
<b>Deliverables</b>				
<b>Resources</b>				
<b>One Time Costs</b>				
<b>Continuing Costs</b>				

## Project Milestones:

*List key milestones and their dates from the project schedule.*

Milestone	Target Date	Forecast Date	Status	Reason for Delay
			<input type="checkbox"/> on target <input type="checkbox"/> delayed <input type="checkbox"/> done	
			<input type="checkbox"/> on target <input type="checkbox"/> delayed <input type="checkbox"/> done	
			<input type="checkbox"/> on target <input type="checkbox"/> delayed <input type="checkbox"/> done	

## Variances

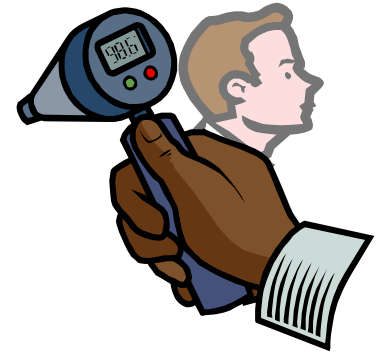
*Check the appropriate box for each project element listed below. Please describe the actions*

*you plan to take for those items marked "Caution" or "Significant Variance."*

	On Plan <5%	Caution 5-10%	Significant Variance >10%	Action Required
<b>Schedule</b>				
<b>Milestones</b>				
<b>Deliverables</b>				
<b>Resources</b>				
<b>One Time Costs</b>				
<b>Continuing Costs</b>				

- ◆ Develop an agenda for your project status review meetings.
- ◆ Timing: 10 minutes

# Monitoring the Vital Signs



- ◆ Aggregate indicators of the overall health of a project
  
- ◆ 15 vital signs
  - Strategic
    - ◆ Strategy alignment, sponsorship, customer buy-in, technology viability, value-to-business, vendor viability
  - Tactical
    - ◆ Status of the critical path, milestone hit rate, deliverable hit rate, unresolved issues, cost-to-date, actual resources vs. planned resources
  - Environmental
    - ◆ High probability-high impact risks, overtime utilization, team disposition (effectiveness)

# Project Vital Signs

✓	<b>1. Customer buy-in</b>
✓	<b>2. Technology viability</b>
✓	<b>3. Status of the critical path</b>
✓	<b>4. Cost-to-date</b>
✓	<b>5. High probability, high impact risks</b>
✓	<b>6. Unresolved issues</b>
✓	<b>7. Sponsorship Commitment</b>
	<b>8. Strategy alignment</b>

	<b>9. Value-to-business</b>
	<b>10. Vendor viability</b>
	<b>11. Milestone hit rate</b>
	<b>12. Deliverable hit rate</b>
	<b>13. Actual resources vs. planned resources</b>
	<b>14. Overtime utilization</b>
	<b>15. Team Effectiveness</b>

## ♦ Green light



- All is well
- Variance is acceptable

## ♦ Yellow light



- Caution, trouble ahead
- The vital sign has reached a level at which it will begin to have a negative impact on the project

## ♦ Red light

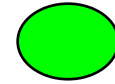


- Danger, measurable impact on the project
- May be beyond project manager's ability to recover

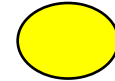
## ♦ An assessment of the degree of *ongoing* buy-in

- High degree of buy-in
- Medium degree of buy-in
- Low degree of buy-in

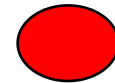
Green






Yellow



Red



- ◆ An assessment of the viability of the technology infrastructure to support the project
    - Is the enabling technology available and viable for project development?
    - Will the technology remain viable as new scope is added into the system?
    - Will the technology escalate easily to meet the project's operational requirements?
    - Can it be supported by the IT organization?
    - Will the customers be able to adopt it?
  
  - ◆ High degree of viability
  - ◆ Medium degree of viability
  - ◆ Low degree of viability
- |        |   |
|--------|---|
| Green  |  |
| Yellow |  |
| Red    |  |

- ◆ This vital sign measures the percent variance in the critical path

- Breach of < 10%
- Breach of 10% to 20%
- Breach of > 20%

Green



Yellow



Red



# Variance

**Variance = Current - Baseline**

**Percent variance = (Variance ÷ Baseline) X 100**

Vital Sign	Baseline	Current	Variance	% Variance	Status
Critical path	150 days	172 days	22 days	+14.7%	Delay

**Critical path variance = 172 days - 150 days = 22 days**




**Percent variance = (22 days ÷ 150 days) = 14.7%**

- ◆ This vital sign is measured by computing the percent variance between the baseline cost-to-date and the actual cost-to-date

- Variance of  $< 10\%$  Green
- Variance of  $10\%$  to  $20\%$  Yellow
- Variance of  $> 20\%$  Red



- ◆ Even with risk plans in place, carrying a large number of high-level risks is not healthy for a project
  




• One to three risks	Green	
• Four to five risks	Yellow	
• Six to seven risks	Red	
- 
- ◆ A project that has more than seven high level risks has so many problems that vital sign monitoring may be futile

- ◆ Unresolved issues represent holes in the project plan and, as such, can have significant negative impact
- ◆ The project manager should set dates for resolution of all issues
  - Any issue that remains unresolved that **might** impact that critical path raises a yellow warning flag
  - Any issue that remains unresolved that **will** impact the critical path raises a red warning flag

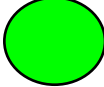
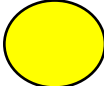
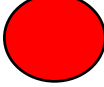
- ◆ One of the most important and difficult signs to monitor
- ◆ The basic questions about sponsorship are:
  - Is the sponsor aware of their specific responsibilities? Discussed them with the PM?
  - Has the sponsor set aside sufficient time to be an effective sponsor?
  - Does the project manager have quick and easy access to the sponsor for resolution of important issues?
  - Does the sponsor meet routinely with the project manager to assess the status of various vital signs and project progress?

# Sponsor Performance Checklist

Sponsor Performance Checklist	Rating			
Rating:1=Rarely 2=Sometimes 3=Most of the time 4=Always				
1. Champions the project.	1	2	3	4
2. Timely approval of the project charter, plan, schedule, and budget.	1	2	3	4
3. Ensures sustained buy-in at key stakeholder level.	1	2	3	4
4. Champions the project and the project team.	1	2	3	4
5. Helps ensure timely availability of human resources when needed.	1	2	3	4
6. Helps resolve major policy and/or political issues.	1	2	3	4
7. Formally manages (oversees) the project scope.	1	2	3	4
8. Values the stage gate process.	1	2	3	4
9. Remains informed about the status of the project.	1	2	3	4
10. Provides regular feedback to the project manager and team on performance.	1	2	3	4

- ◆ Use the sponsor checklist to assess this vital sign
- ◆ Use the assessment to seek what you need from the sponsor
- ◆ Vital signs for the checklist provided:
  - All items rated 3 or above      Green      
  - One or two items rated < 3      Yellow      
  - Three or more items rated < 3      Red      

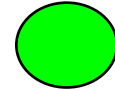
- ◆ Does the project continue to fit with the currently stated organizational strategy

- |                    |        |   |
|--------------------|--------|---|
| • Fully aligned    | Green  |  |
| • Somewhat aligned | Yellow |  |
| • No alignment     | Red    |  |

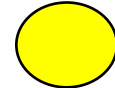
- ◆ Assumptions and realities may change regarding the project's value to the business
- ◆ This vital sign takes stock of how valuable the project remains to the business

- High value-to-business
- Medium value-to-business
- Low value-to-business

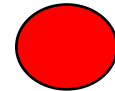
Green



Yellow



Red

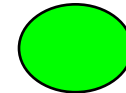


# Vendor Viability

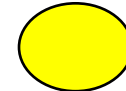
- ◆ Vendor viability can change as the project progresses
- ◆ This vital sign takes stock of the current vendor viability to support the project

- High viability
- Medium viability
- Low viability

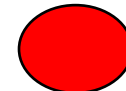
Green






Yellow






Red






# Milestone Hit Rate

- ◆ This vital sign measures the variance of actual milestone completions from planned milestone completions. It can be measured in two separate monitoring cycles
  - To-date performance
    - ◆ Planned milestone completions, to-date, vs. actual milestone completions, to date
  - A shorter monitoring cycle--every two weeks
    - ◆ Planned milestone completions in the cycle vs. actual milestone completions in the cycle
- Breach of < 10%                      Green 
- Breach of 10% to 20%                Yellow 
- Breach of > 20%                      Red 

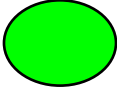
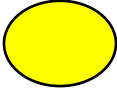
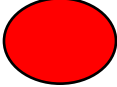
# Deliverable Hit Rate




- ◆ This vital sign measures the variance of actual deliverable completions from planned deliverable completions. It can be measured in two separate monitoring cycles
  - To-date performance
    - ◆ Planned milestone completions, to-date, vs. actual milestone completions, to date
  - A shorter monitoring cycle--every four weeks
    - ◆ Planned milestone completions in the cycle vs. actual milestone completions in the cycle
  
- Breach of < 10%                      Green      
- Breach of 10% to 20%                Yellow     
- Breach of > 20%                      Red        

- ◆ This vital sign has three measurements:
  - The number of PY team members working vs. the number of planned PY team members
  - Planned skill levels vs. actual skill levels
  - Unplanned turnover

- ◆ This vital sign is measured principally by the variance in planned vs. actual FTE
  - Breach of < 10%                      Green   
  - Breach of 10% to 20%                Yellow   
  - Breach of > 20%                      Red   
  
- ◆ In addition:
  - Unplanned turnover of a core team member can cause the critical path to slip behind schedule by 4-6 weeks.
  - Unplanned turnover of a project manager can delay a project by 6-9 weeks.
  - The change of a sponsor can jeopardize the entire project.

- ◆ Occasional overtime is a routine part of work life, but consistent overtime is a sign of deep, systemic problems caused by poor management practices

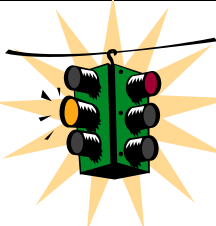






- |                       |        |   |
|-----------------------|--------|---|
| • Overtime < 15%      | Green  |    |
| • Overtime 15% to 25% | Yellow |    |
| • Overtime > 25%      | Red    |  |

- ◆ This is an often neglected vital sign
- ◆ It is a qualitative sign, and difficult to measure.
  - A skilled and experienced individual should perform the assessment
  - Ideally, a perceptive project manager that walks the floor, talks with team members, and keeps lines of communication open
- ◆ Our vital sign is based on evaluations made with the Team Effectiveness Assessment
  - All items rated 3 or above      Green      
  - One or two items rated < 3      Yellow      
  - Three or more items rated < 3      Red      

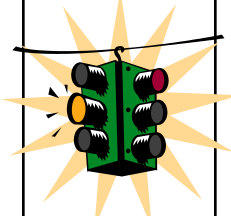









# Team Effectiveness Assessment

Team Disposition (Effectiveness) Survey	Rating
<b>1. Goals:</b> Clearly communicated to the team; shared by all; all care about the goals, and feel involved	1 2 3 4
<b>2. Participation:</b> All are involved; all are listened to	1 2 3 4
<b>3. Problem solving:</b> When problems surface, the project manager involves the team to help diagnose the root causes before proposing actions; remedies attack basic causes	1 2 3 4
<b>4. Decision making:</b> Consensus sought and tested; various points of view appreciated and used to improve decisions; decisions (when made) are fully supported	1 2 3 4
<b>5. Trust:</b> Members trust one another; they reveal to group what they would be reluctant to expose to others; they respect and use the responses they get; they can freely express negative reactions without fearing reprisal	1 2 3 4
<b>6. Creativity and growth:</b> Team members are flexible, seek new and better ways	1 2 3 4
<b>7. Leadership:</b> Project manager is well equipped to manage the team and does it professionally	1 2 3 4
<b>8. Professional growth:</b> There are ample opportunities for individual growth--both through work experience and education and training programs offered by the organization	1 2 3 4
<b>Rating: 1 = Rarely    2 = Sometimes    3 = Most of the Time    4 = Always</b>	

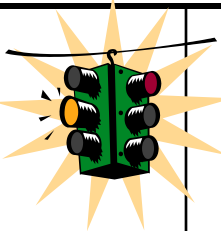






# Vital Signs Report (Small Project)

Vital Sign		Deviation	Value	Score Just.
1. Customer Buy-In	  	High degree Medium degree Low degree	0 1 2	
2. Technology Viability	  	Strong Medium Weak	0 1 2	

# Vital Signs Report

Vital Sign		Deviation	Value	Score Just.
3. Status of the critical path (Schedule Performance)		<10%	0	
		11%- 20%	1	
		>20%	2	
4. Actual Cost-to-Date vs. Estimated Cost-to-Date (Budget Performance)		<10%	0	
		10% - 20%	1	
		>20%	2	
5. High Probability, High Impact Risks		1-3 Risks	0	
		4-5 Risks	1	
		6-7 Risks	2	

# Vital Signs Report

Vital Sign		Deviation	Value	Score Just.
6. Unresolved Issues (on time resolution)		On time	0	
		Late, no impact	1	
		Late, impact CP	2	
5. Sponsorship Commitment		Fully engaged	0	
		Partial	1	
		Inadequate	2	

Green =	0	to	4
Yellow =	5	to	9
Red =	+		9

# Dashboard for Multiple Projects

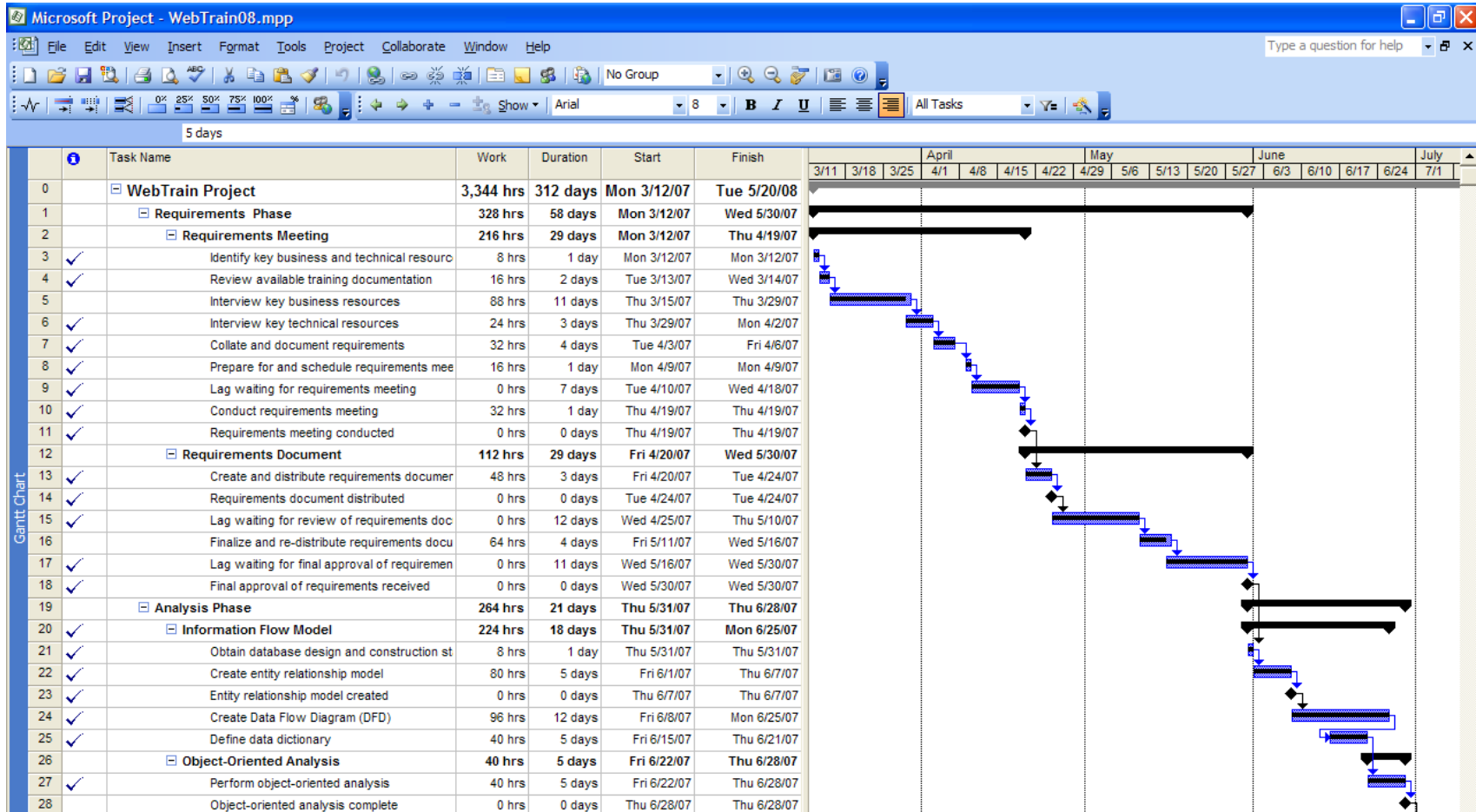
Project Name	Schedule	Budget	% Complete	Projected Finish	EAC
Pickle Project			45%	12/08	\$825K
Peach Project			75%	12/08	\$1,235K
Pear Project			20%	12/09	\$5,265K
Purple Project			90%	09/08	\$2,345K
Power Project			10%	5/10	\$6,568K

# PM Information System



- ◆ Types
  - Project management software
    - ◆ Primavera®
    - ◆ Microsoft Project®
    - ◆ Other
  - Database software
  - Spreadsheet
- ◆ To be reliable it must be:
  - Appropriately designed
  - Adequately populated
  - Properly maintained

# Microsoft Project®



# Statistics Box – MS Project

Project Statistics for 'WebTrain08.mpp' ✕

	Start	Finish
Current	Mon 3/12/07	Tue 5/20/08
Baseline	Mon 3/12/07	Tue 4/29/08
Actual	Mon 3/12/07	NA
Variance	0d	15d

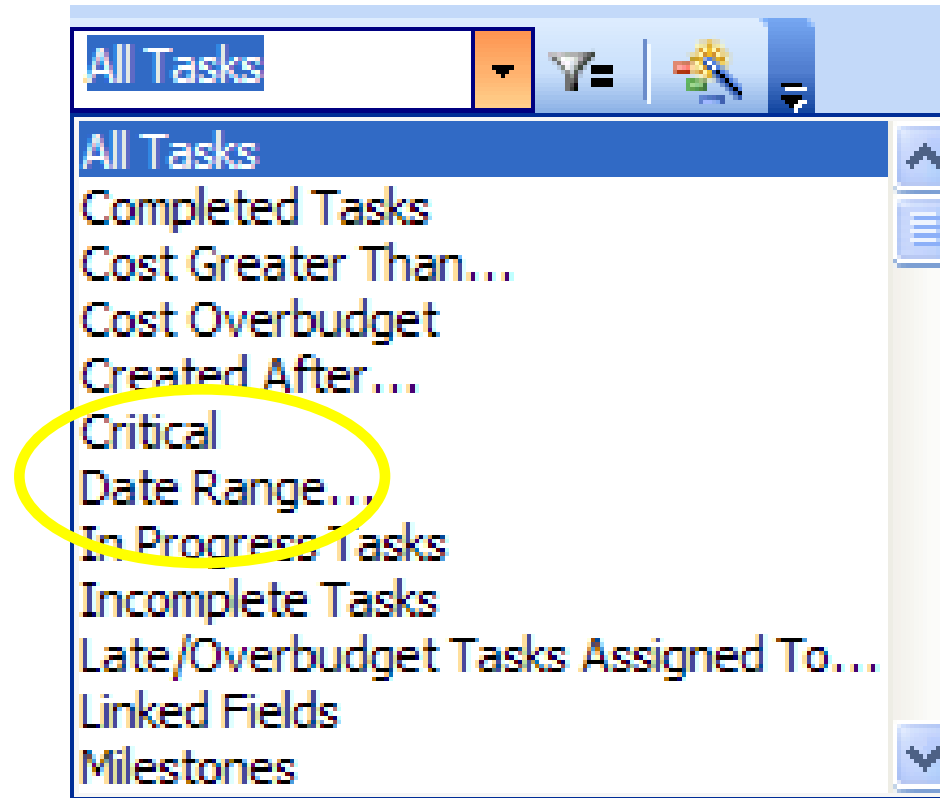
  

	Duration	Work	Cost
Current	312d	3,344h	\$131,634.64
Baseline	297d	3,064h	\$120,500.02
Actual	180.27d	1,752h	\$70,807.69
Remaining	131.73d	1,592h	\$60,826.92

Percent complete: \_\_\_\_\_

Duration: 58%      Work: 52%

Close



# Look Ahead Review – Date Range

**Date Range** [X]

Show tasks that start or finish after:

January 7, 2008 [v]

OK Cancel

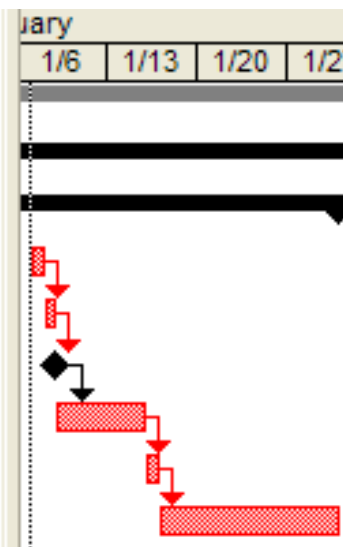
**Date Range** [X]

And before:

January 25, 2008 [v]

OK Cancel

	Task Name	Start	Finish
0	<input type="checkbox"/> <b>WebTrain Project</b>	<b>Mon 3/12/07</b>	<b>Tue 5/20/08</b>
83	<input type="checkbox"/> <b>Development Phase</b>	<b>Tue 10/30/07</b>	<b>Thu 5/15/08</b>
92	<input type="checkbox"/> <b>Business Rule Server Unit Test</b>	<b>Mon 12/24/07</b>	<b>Wed 1/30/08</b>
95	Conduct business rule server unit test	Mon 1/7/08	Mon 1/7/08
96	Prepare for and schedule business rule ser	Tue 1/8/08	Tue 1/8/08
97	Business rule server review meeting sched	Tue 1/8/08	Tue 1/8/08
98	Lag waiting for business rule server unit tes	Wed 1/9/08	Tue 1/15/08
99	Conduct business rule server unit test revie	Wed 1/16/08	Wed 1/16/08
100	Finalize business rule server technical docu	Thu 1/17/08	Wed 1/30/08



- ◆ Preventing unnecessary changes
- ◆ Evaluating scope change requests
- ◆ Communicating scope change information to stakeholders

## ◆ Sources

- Customer requests
- Changing conditions
  - ◆ Reduction in budget
  - ◆ Revised delivery date
  - ◆ Alternative technology

## ◆ Scope Change Request Form

- Reflects change criteria established in the Scope Management Plan

- ◆ Change Request #
- ◆ Description
- ◆ Change category
  - Must have
  - Should have
  - Nice to have
- ◆ Benefits
- ◆ Impacts
- ◆ Risk

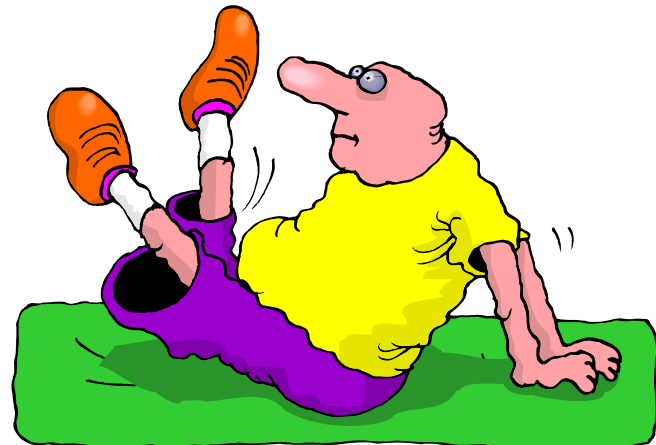
# Change Categories

Category	Definition	Rationale
Must Have	Necessary for the functional viability of the project	
Should Have	Will significantly increase product quality and/or usability	
Nice to Have	Would enhance the ease of use	

Attributes	Impact	
Schedule	How many days will be added to the schedule?	
Cost	How many dollars will be added to the cost?	
Quality	How will the quality of the product be impacted?	
Resource Availability	Will there be adequate resources to make the change?	
	Will there be adequate resources downstream if the change causes a delay in the schedule?	
Risk of New Errors* *risk level	What is the probability that new errors will occur?	
	What is the level of impact of those errors?	

# Exercise

- ◆ Assume that your project management plan has been reviewed and approved and you are several weeks into Design.
- ◆ One of your team members had proposed adding a significant piece of scope. (For additional scope ideas, refer to the Preliminary Scope Statement template, Future Opportunity or Outside of Scope)
- ◆ Complete a Scope Change Request Form for the proposed change.
- ◆ Timing: 20 minutes



# Scope Change Request Log

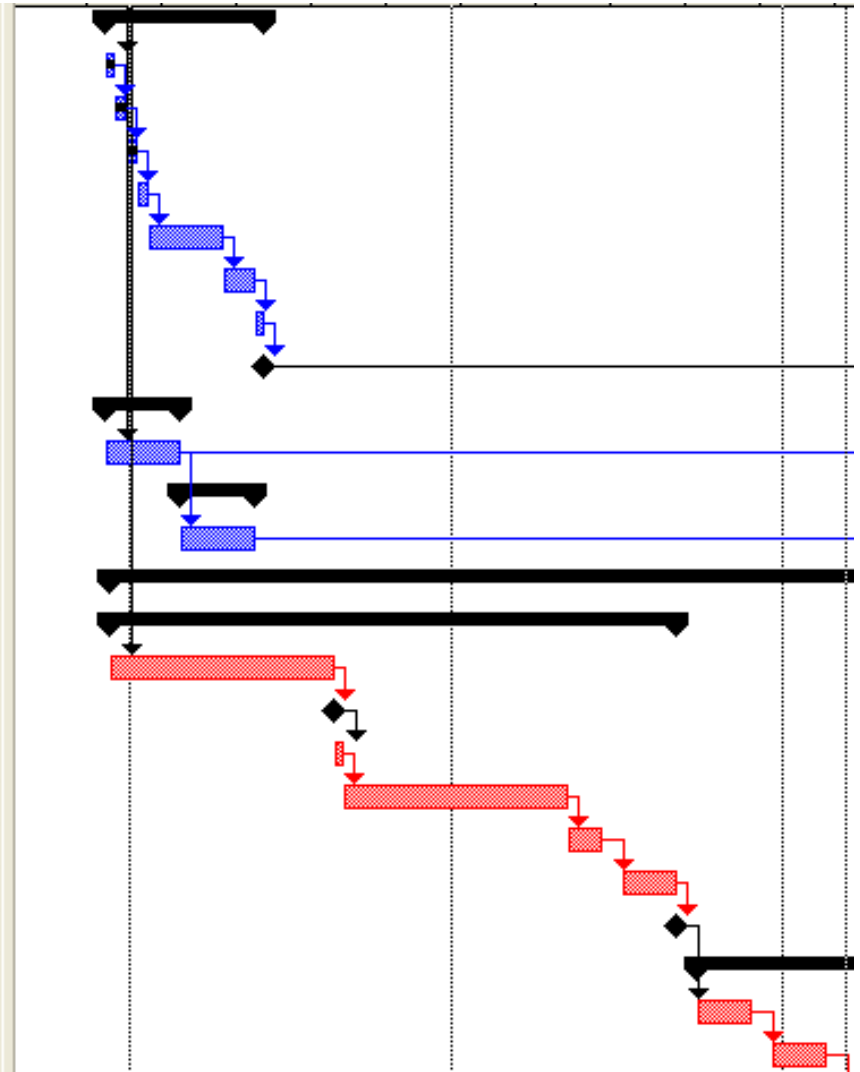
#	Change Requested	Date Submitted	Date Reviewed	Approved	Reason
12	Rearrange navigation buttons to left side of website	8/23	9/4	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Too much interference with website content
				<input type="checkbox"/> yes <input type="checkbox"/> no	

- ◆ Determine if we are where we should be
- ◆ Prevent causes of delay
- ◆ Determine occurrence and impact of variances
- ◆ Take/propose corrective actions
- ◆ Manage approved changes

# Critical Path View

**Gantt Chart**

70	<input type="checkbox"/> <b>User Interface</b>
71	Obtain user interface design and construction
72	Meet to develop user interface unit test scenarios
73	Meet to develop user interface unit test data
74	Prepare for and schedule user interface test
75	Lag waiting for test scenario/data review
76	Conduct user interface test scenario/data review
77	Revise unit test scenarios and data
78	User interface test scenarios finalized
79	<input type="checkbox"/> <b>Documentation Plan</b>
80	Prepare documentation plan
81	<input type="checkbox"/> <b>Training and Education Plan</b>
82	Prepare training and education plan
83	<input type="checkbox"/> <b>Development Phase</b>
84	<input type="checkbox"/> <b>Business Rule Server Code</b>
85	Develop Business Rule Server code
86	Initial Business Rule Server Code Completed
87	Prepare for and schedule Code Review for
88	Lag waiting for Business Rule Server Code
89	Conduct Code Review of Business Rule Server
90	Finalize Business Rule Server code
91	Business Rule Server Code Finalized
92	<input type="checkbox"/> <b>Business Rule Server Unit Test</b>
93	Conduct business rule server unit test
94	Refine business rule server logic



# Baseline Schedule Variance Calculation

Project Statistics for 'ClassCaseStudyCopyBase2.mpp'

	Start	Finish
Current	Mon 01/24/00	Wed 08/09/00
Baseline	Mon 01/24/00	Fri 06/30/00
Actual	Mon 01/24/00	NA
Variance	0d	28.25d

	Duration	Work	Cost
Current	143d	3,670h	\$160,149.23
Baseline	114.75d	3,056h	\$139,139.32
Actual	79.47d	2,416h	\$92,269.39
Remaining	63.53d	1,254h	\$67,879.84

Percent complete: \_\_\_\_\_

Duration: 56%      Work: 66%

Close

Number of days over/under baseline: \_\_\_\_\_

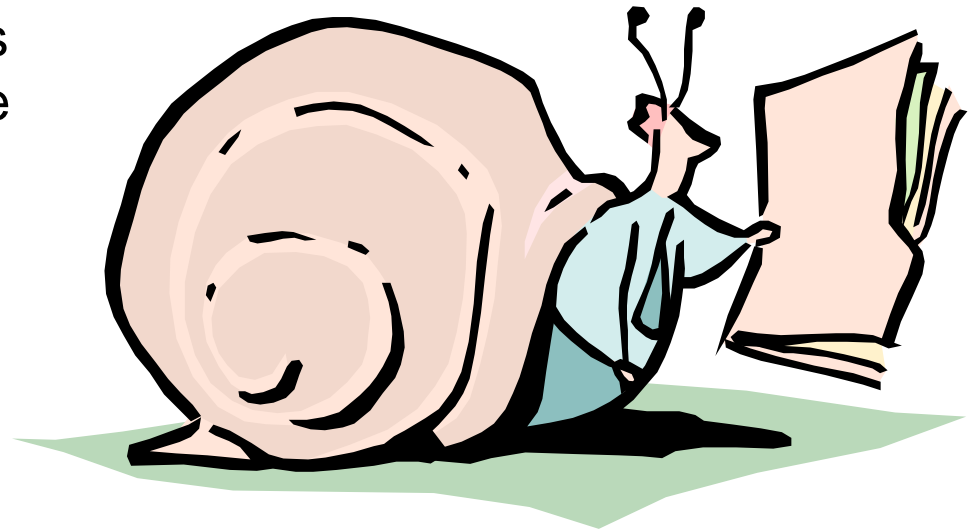
Percentage variance: \_\_\_\_\_

Health rating:

☐ Red ☐ Yellow ☐ Green

# Mitigating Variances

- ♦ Take additional risk
  - Shorten/reduce testing
  - Begin work before formal approvals
- ♦ Crashing
  - ♦ Shorten task durations
  - ♦ Fast tracking
    - ♦ Examine dependencies
    - ♦ Overlap where possible
  - ♦ Additional resources
    - ♦ Human
    - ♦ Others
- ♦ Analyze lags
- ♦ Request scope reduction
- ♦ Phased implementation



- ◆ Review your team's Network Diagram
- ◆ Reduce the duration of your project's critical path by 25% using at least 3 different actions
- ◆ Be prepared to present your approach and results to the group
- ◆ Timing 20 minutes



- ◆ Track cost performance indicators against project cost baseline
- ◆ Determine occurrence and impact of variances
- ◆ Take/propose corrective action
- ◆ Apply a formal process to control changes to the project budget

# Cost Control Terminology

Project Statistics for 'WebTrain08.mpp' ✕

	Start	Finish
Current	Mon 3/12/07	Tue 5/20/08
Baseline	Mon 3/12/07	Tue 4/29/08
Actual	Mon 3/12/07	NA
Variance	0d	15d

	Duration	Work	Cost
Current	312d	3,344h	\$131,634.64
Baseline	297d	3,064h	\$120,500.02
Actual	180.27d	1,752h	\$70,807.69
Remaining	131.73d	1,592h	\$60,826.92

Percent complete: \_\_\_\_\_

Duration: 58%      Work: 52%

**EAC** → (points to Cost column header)

**ETC** → (points to Remaining Cost value)

Close

**EAC = Estimate At Completion**

**ETC = Estimate to Complete**

# Baseline Cost Variance Calculation

Project Statistics for 'ClassCaseStudyCopyBase2.mpp'

	Start	Finish
Current	Mon 01/24/00	Wed 08/09/00
Baseline	Mon 01/24/00	Fri 06/30/00
Actual	Mon 01/24/00	NA
Variance	0d	28.25d

	Duration	Work	Cost
Current	143d	3,670h	\$160,149.23
Baseline	114.75d	3,056h	\$139,139.32
Actual	79.47d	2,416h	\$92,269.39
Remaining	63.53d	1,254h	\$67,879.84

Percent complete: \_\_\_\_\_

Duration: 56%      Work: 66%

Close

Forecasted Cost of Project: \_\_\_\_\_

Project Baseline Cost: \_\_\_\_\_

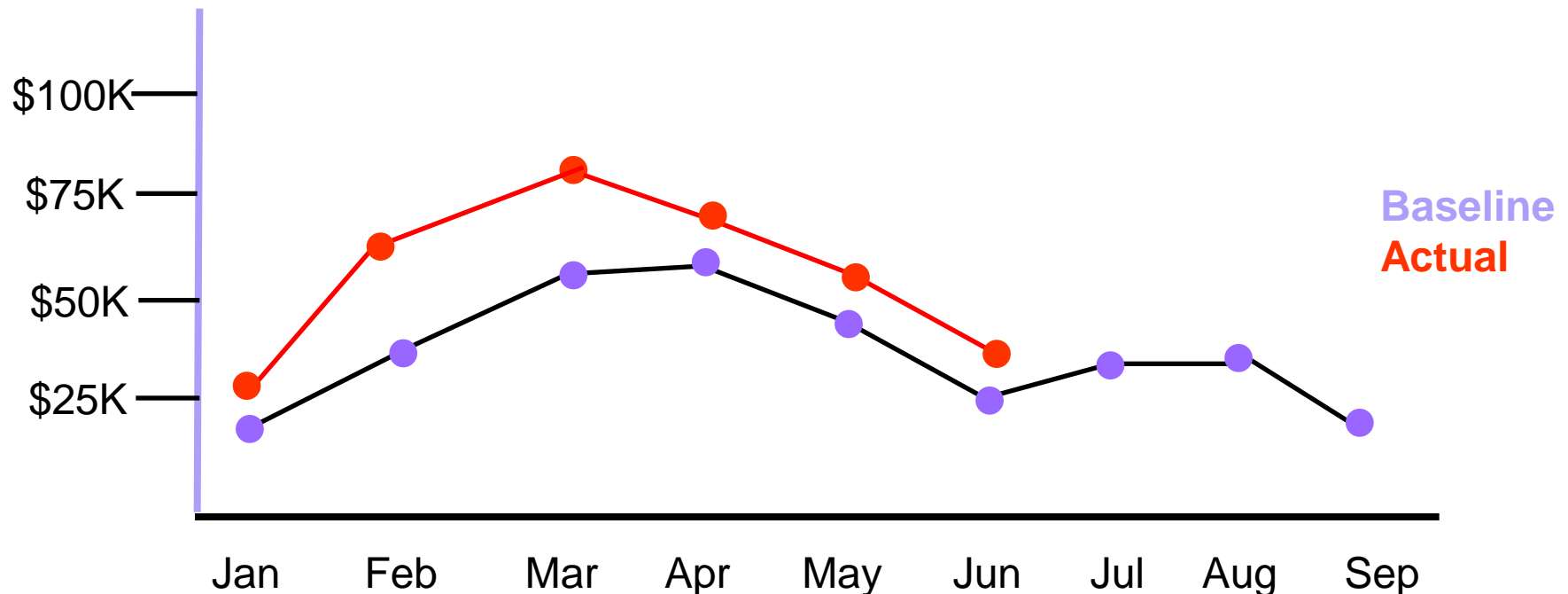
How much \$ over/under budget (baseline): \_\_\_\_\_

Percentage variance: \_\_\_\_\_

Health rating:

☐ Red ☐ Yellow ☐ Green

- ◆ Involves the collection and distribution of all baseline data and performance information to stakeholders:

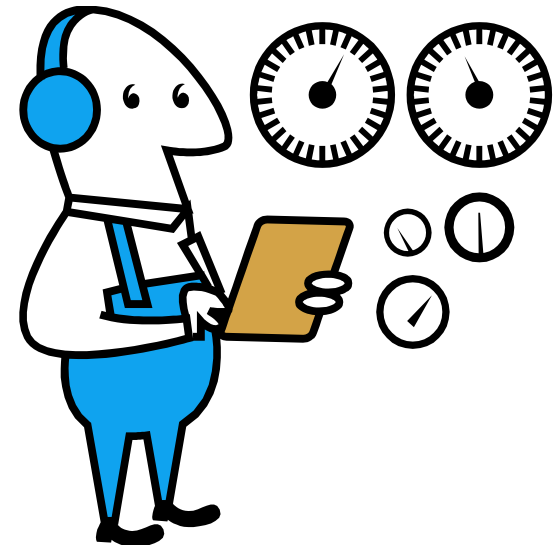


# Cost Control Exercise

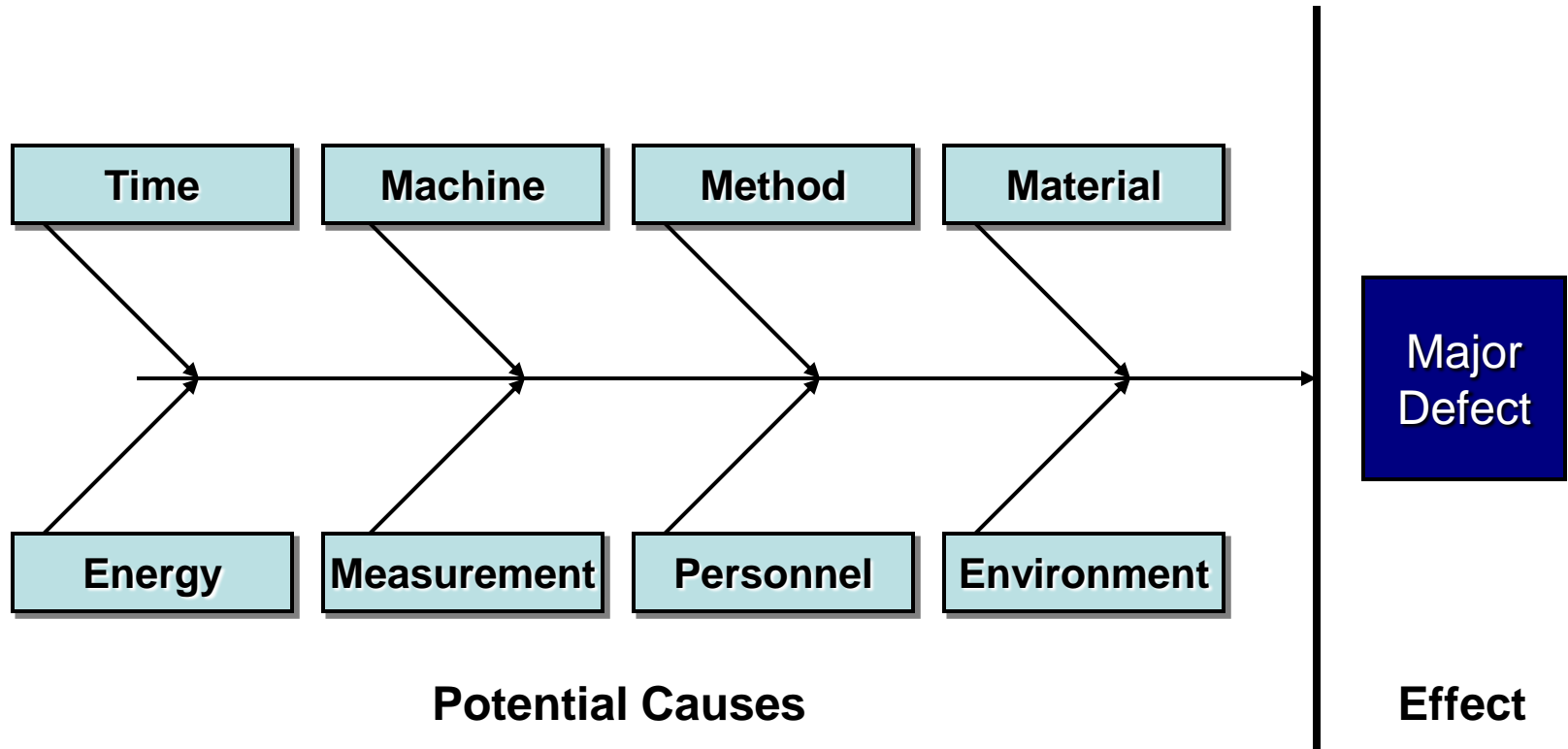
- ◆ Refer to your size estimate completed during Initiating. Assume that the approved budget for the project is equal to the size estimate.
- ◆ You were just informed that the cost of your base phase will be 50% higher than you estimated.
- ◆ Analyze the effect of that cost increase on your budget.
- ◆ Keeping the project priorities in mind, what would course of action would you recommend?
- ◆ Timing: 20 minutes

- ◆ Identifying, analyzing, and planning for newly arising risks
- ◆ Keeping track of the identified risks and those on the watch list
- ◆ Reanalyzing existing risks
- ◆ Monitoring trigger conditions for contingency plans
- ◆ Monitoring residual and secondary risks
- ◆ Reviewing the execution of risk responses while evaluating their effectiveness

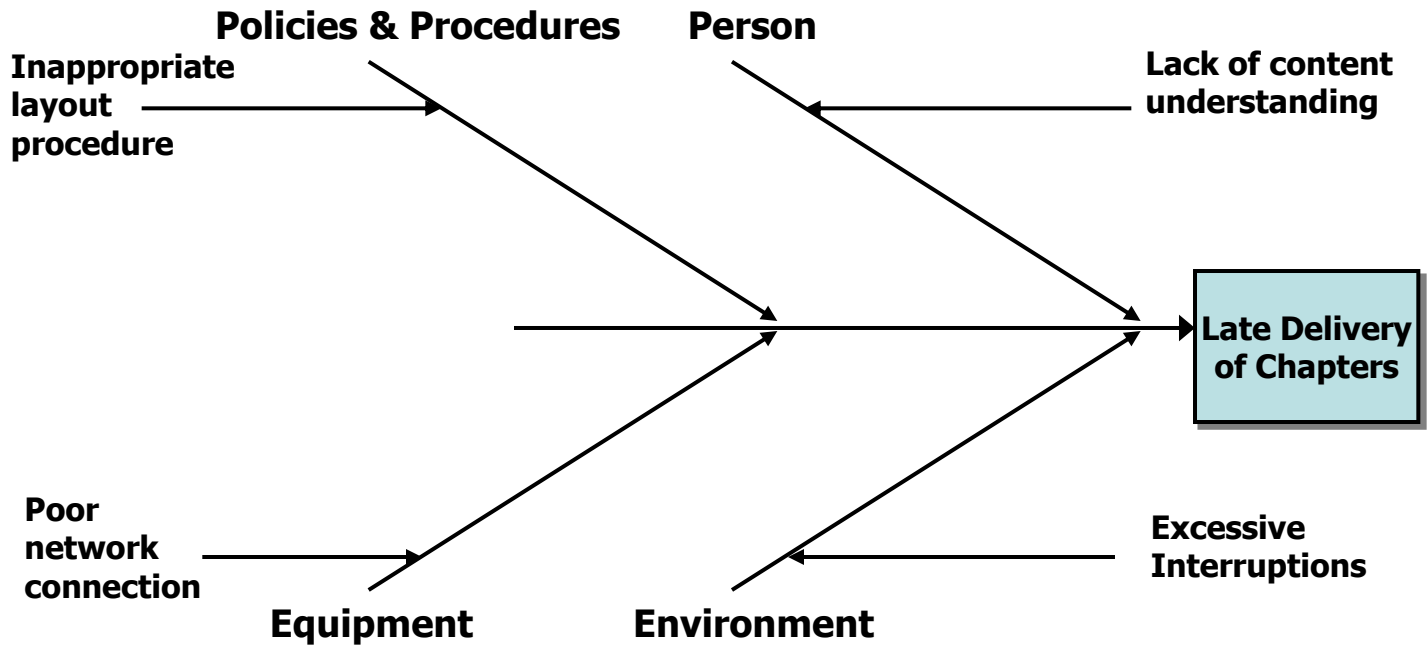
- ◆ Refer to the Risk Management Plan template.
- ◆ Scroll down to the section Trigger Events.
- ◆ Identify the trigger events for medium and high level risks
- ◆ Timing: 15 minutes



# Cause and Effect Diagram

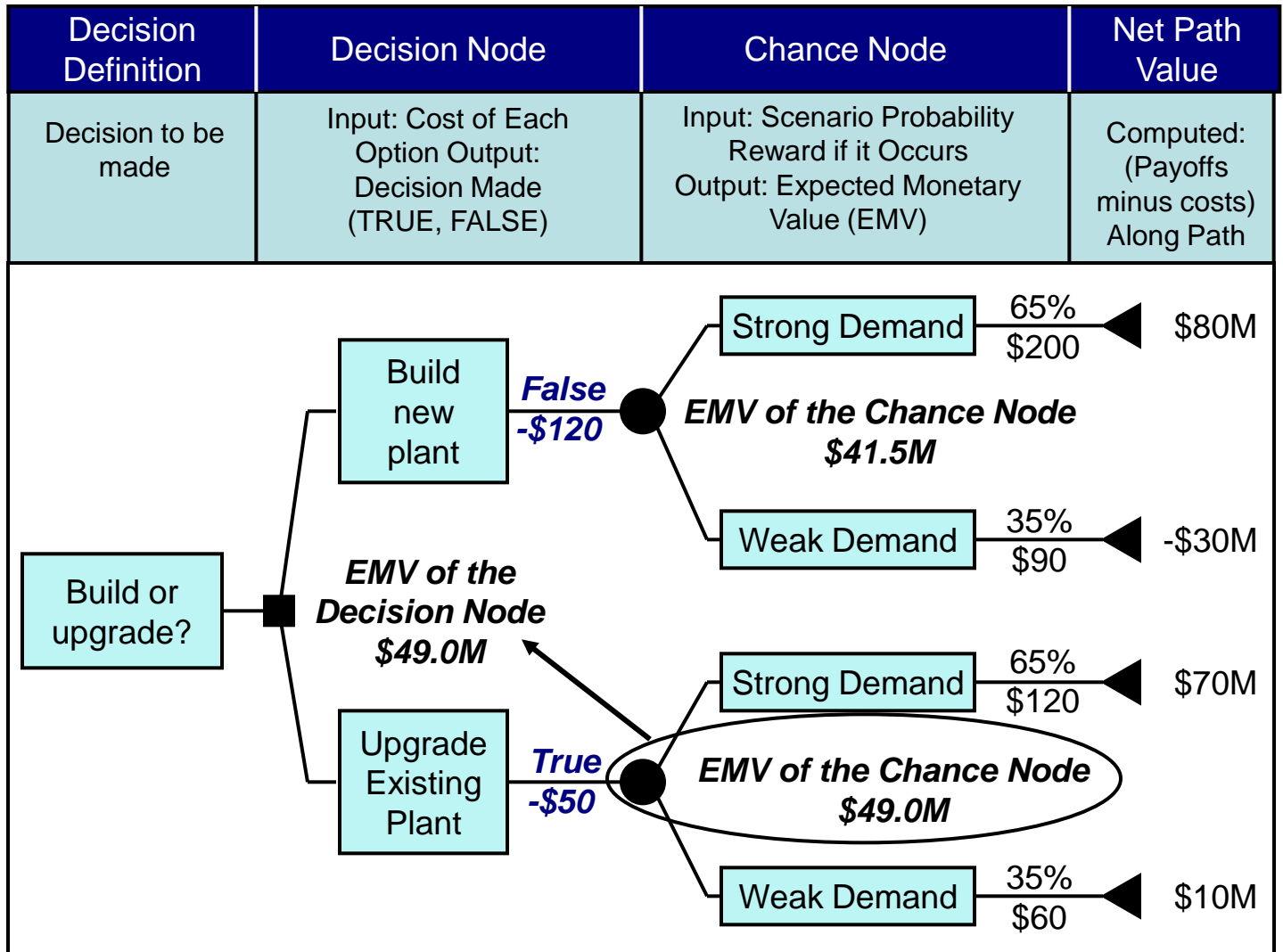


# Cause-and-Effect Diagram



Source: Gopal K. Kapur, *Project Management for Information, Technology, Business, and Certification*, Pearson Prentice Hall. 2005

# Decision Tree Diagram



- ◆ Refer to the Exercise Booklet; complete the Decision Tree Exercise
- ◆ Timing: 15 minutes

# Project Management Plan Updates

## Updates

<b>PM PLAN Version</b>	<b>Date:</b>		<b>By Whom:</b>	
<b>Plan Revision 1</b>	<b>Date:</b>		<b>By Whom:</b>	
<b>Plan Revision 2</b>	<b>Date:</b>		<b>By Whom:</b>	

- ◆ Reality check
- ◆ If benefits are no longer valid, the project must be re-evaluated
- ◆ Refer to benefits stated in business case
- ◆ Explain assessment
- ◆ Describe action required

# Benefit Validation

Stated Benefit	Achievement	Explanation	Action Required
3% reduction in operating cost	<input type="checkbox"/> validated <input checked="" type="checkbox"/> probable <input type="checkbox"/> possible <input type="checkbox"/> not possible	Cost reduction based on reducing dependence on contractors; we have incorporated contractor job responsibilities into existing state employee job descriptions	None
Reduce manual effort in process by 50%	<input type="checkbox"/> validated <input type="checkbox"/> probable <input type="checkbox"/> possible <input checked="" type="checkbox"/> not possible	Unable to eliminate all manual spreadsheets; unable to create interface between XYS system and finance; best case is a 25% reduction	Analyze impact to overall project value; decide whether to continue to pursue this goal, or drop from Scope

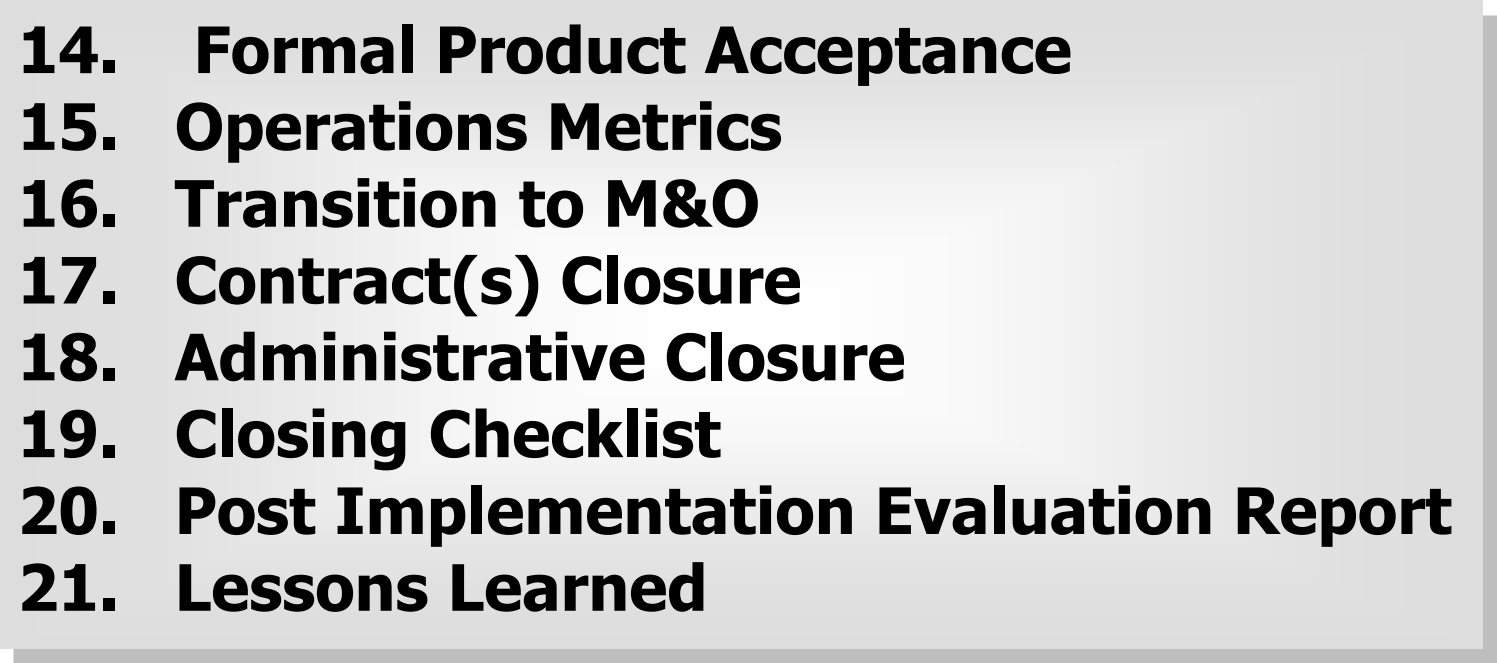
- ◆ Refer to your description of expected benefit in the Background Section in the Project Charter.
- ◆ List two of the stated benefits in the Benefit Validation Template.
- ◆ Describe the process you will use to validate those benefits during Execution.
- ◆ Timing: 15 minutes

- ◆ The work gets done
- ◆ PM communicates progress and performance to stakeholders
- ◆ PM adjusts plans as needed
- ◆ Customer accepts completed work
- ◆ Product is implemented
- ◆ Sequence of acceptance and implementation varies by project and/or organization

# Closing



**Closing**

- 
- 14. Formal Product Acceptance**
  - 15. Operations Metrics**
  - 16. Transition to M&O**
  - 17. Contract(s) Closure**
  - 18. Administrative Closure**
  - 19. Closing Checklist**
  - 20. Post Implementation Evaluation Report**
  - 21. Lessons Learned**



**Contract/Administrative Closure**

## ◆ Purpose:

- Formally terminate project activities
- Hand off completed products or close cancelled project
- Formally close project contracts

## ◆ Outputs:

- Final product acceptance
- Contract closure
- Administrative closure

- ◆ Executing:
  - Deliverable acceptance
  - Product implementation
- ◆ Closing
  - Product operating through pre determined cycles
  - Final/formal overall product acceptance

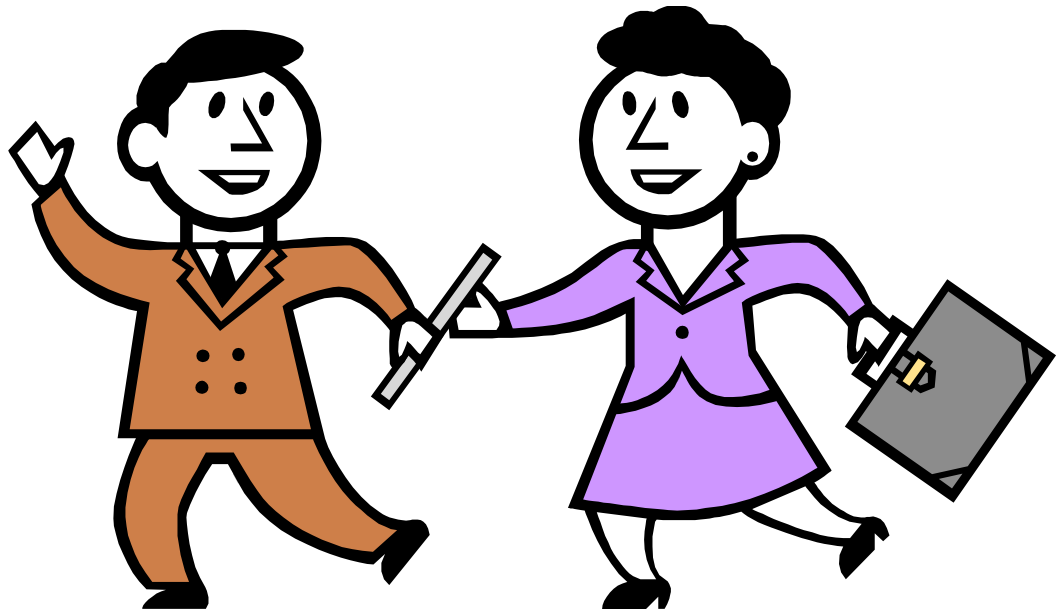


- ◆ Product performance measurements
- ◆ Established in the requirements
- ◆ Communicated to operations group
- ◆ Verified as part of the project closing process

# Operations Metric Examples

Connections Completed	Count of connections that successfully completed their transfer and confirmation.
Bytes Received	Total number of bytes received since the system started.
Messages Received	Total number of messages received by the system.
Bytes Sent	Total number of bytes sent out to connections.
Commands Sent	Count of commands sent.
Active Receiving Connections	A count of the currently active connections that are open and sending information.
Connections in Queue	Number of connections currently waiting in the queue to be processed.
Connections Failed	Number of connections that have failed to complete successfully.
Average Connection Time	The average time a connection spends communicating with they system.

- ◆ Execute the Maintenance and Operations Transition plan



- ◆ Process
  - ◆ Check if final work products received/done
  - ◆ Follow contractor evaluation process
  - ◆ Verify final invoices received and processed
  - ◆ Archive contract records
- ◆ Contract Tracking Database
  - ◆ What contract details will
  - ◆ be tracked?



- ◆ Collect, record, document and/or archive all project information needed to formalize and finalize that the project (or phase) is closed
  
- ◆ Closure actions include:
  - Human resources: evaluate and release from the project
  - Contracts: follow all closure procedures
  - Assessment: analyze project success or failure and capture lessons learned
  - Product/process: finalize transfer of ownership/authority of product or operations to the customer
  - Organizational process assets: archive project data and lessons learned

# Project Closure Checklist

Project Name:

OCIO Project #:

Department:

Revision Date:

## Project Closure Checklist

Work Completion Target Date	<input type="text"/>
Project Closure Target Date	<input type="text"/>

Actual Completion Date	<input type="text"/>
Actual Closure Date	<input type="text"/>

ID	Description	Deliverable(s)	Deliver To	Owner	Due Date	Complete (Y/N)	Actual Completion Date
1	Finalize project documentation						
2	Dispose of data and/or return master media						
3	According to the agreed data retention policy, back up all files and databases related to the project.						

- ◆ Post Implementation Evaluation Report
- ◆ Evaluation of benefits derived from the project
- ◆ Timing varies by project

- ◆ Background and summary of results
  - ◆ Project history
  - ◆ Project objectives
  - ◆ Project results

- ◆ Post implementation and customer acceptance
- ◆ Observation of how people are using the product
- ◆ Part of benefits measurement
- ◆ Results may require action

# Product/System Use Review Example

Product	Observer	Date Observed	Used as designed	If not, why not	Impact	Action Required and Due Date
Global Template	B. Smith	10/15//07	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no			
Base Service Schedule	B. Smith	10/15//07	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Not adjusting base assignment % when project commitments are made	Resources appear to be over allocated but actually are not	Review procedures w/ resource managers
Resource Allocation Report	B. Smith	10/15//07	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	No trust in data	Unable to do reliable demand planning	See above; and meet with directors to gain additional support

- ◆ Attainment of objectives
- ◆ Lessons learned
- ◆ Milestones

- ◆ Financial Summary
  - Last approved alternative costs
  - Actual project costs
  - Cost comparison

# Lessons Learned

- ◆ Conduct lessons learned sessions for all projects with key internal and external stakeholders
- ◆ Focus on technical or developmental processes
  - aided
  - hindered
- ◆ Specific results from lessons learned include:
  - Update of the lessons learned database
  - Input to the knowledge management system
  - Updated corporate policies, procedures and processes
  - Improved business skills
  - Overall product and service improvements
  - Updates to the risk management plan

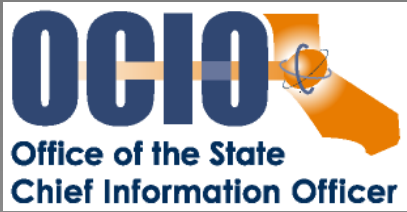
# Maintenance & Operations

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**Projects enter maintenance and operations and close when benefits have been measured.**

- ◆ +/EBI

- ◆ Next Steps



Thank You!